European Commission

JRC SCIENCE AND POLICY REPORT

RIO Country Report Cyprus 2014

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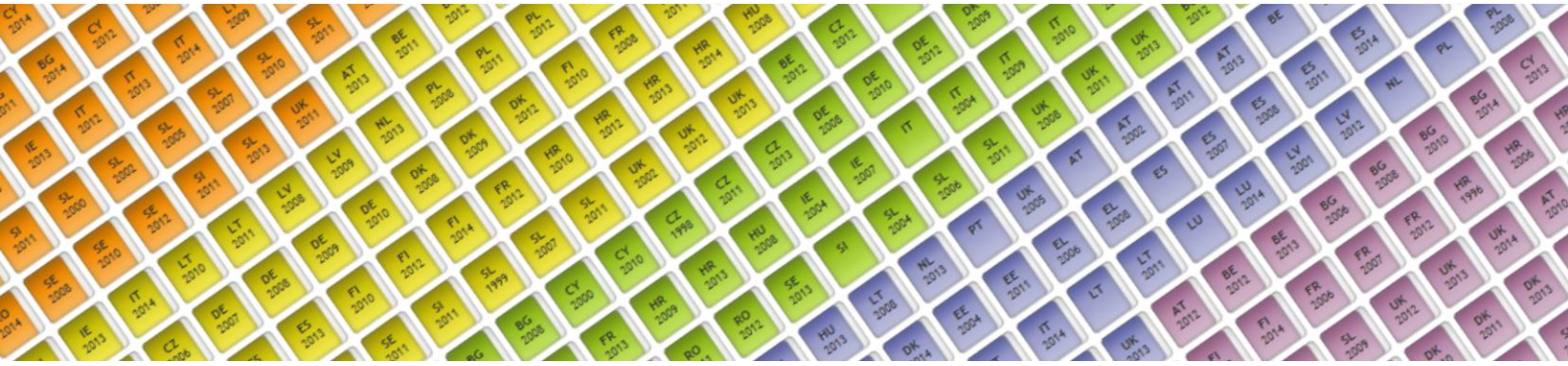
2015



Report EUR 27302 EN

Joint Research Centre

European Commission
Joint Research Centre
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https://ec.europa.eu/jrc

JRC 96492

EUR 27302 EN

ISBN 978-92-79-48958-7 (PDF)

ISSN 1831-9424 (online)

doi:10.2791/682817

Luxembourg: Publications Office of the European Union, 2015

Abstract

The report offers an analysis of the R&I system in Cyprus for 2014, including relevant policies and funding, with particular focus on topics critical for two EU policies: the European Research Area and the Innovation Union. The report was prepared according to a set of guidelines for collecting and analysing a range of materials, including policy documents, statistics, evaluation reports, websites etc. The report identifies the structural challenges of the Cypriot research and innovation system and assesses the match between the national priorities and those challenges, highlighting the latest policy developments, their dynamics and impact in the overall national context.

Acknowledgments

The report draft has benefited from comments and suggestions of Christos Aspris and Ioanna Kleanthous from the Directorate General for European Programmes, Coordination and Development and of Robert Gampfer from JRC-IPTS. The contributions and comments from DG RTD and other colleagues from JRC-IPTS are also gratefully acknowledged.

Executive summary

Cyprus is one of the smallest member states experiencing financial distress since 2011, which led to a Memorandum of Economic and Financial Policies by an IMF-ECB-European Commission Troika including a financial rescue package, structural reforms and a mandatory taxation of bank deposits above €100,000. GDP per capita was at €21,000 in 2011, €20,500 in 2012 and €19,000 in 2013 (74% of EU-28 average).

The R&D&I system is in a process of development, triggered mainly by the accession to the EU in 2004. While in focus by national policies (in particular before the financial crisis) it is not fully developed. The R&D intensity is at 0.48% with a target set at 0.5% for 2020 and R&D. In terms of turnover from innovation Cyprus was placed on the 8th position among EU Member States with innovation accounting for 14.7% of total turnover, slightly above EU-27 average (13.4%). The system is persistently dominated by public funding. HERD and GBAORD account for 71% of GERD (last available data 2012). GUF absorbs the highest share of GBAORD. BERD has been persistently low (15.4% GERD) and steadily decreasing since 2008 but resumed growth in 2013.

R&I policy and budget allocations are a responsibility of the Directorate General for European Programmes, Coordination and Development (DG EPCD), while at the implementation level, research and innovation activities are integrated under the Research Promotion Foundation (RPF), an autonomous agency under the supervision of DG EPCD. The Technology Service of the Ministry of Energy, Commerce, Industry and Trade (MECIT) started intervening recently launching innovation policy measures.

Governance changes are expected. Efforts to organise the system around the National Council for Research and Innovation composed of cabinet ministers and the Cyprus Scientific Council, a technical advisory board composed of high calibre scientists, responsible for strategy and planning dragged for a few years. In particular they were slow in addressing the key challenges and therefore a National Committee for Research, Innovation and Technological Development (NCRITD) was appointed in September 2013 with the target to make recommendations for a new RDI structure and governance. A report was finalised and formally presented to the government in the spring of 2014. Governance is thus expected to change by appointing a political authority with full responsibility for R&I policies.

In the past there has never been an R&I strategy adopted by the Council of Ministers. A policy document was prepared in the context of RIS-1 but was never formally adopted. NCRITD provided the guidelines for a new strategy for Research, Innovation and Entrepreneurship (RIE) in its final report in spring 2014 based on horizontal policy 9 axes. In parallel, an encompassing Smart Specialisation Strategy has been prepared.

The European Structural and Investment Funds (ESIF) will be the main sources of R&I funding in the period 2014-20. The bulk of this funding will be spent through the DESMI Framework Programme 2014-2020. Innovation is a priority in the current programming period. Funding priorities will include:

- Restructuring of the economy and enhancement of its competitiveness;
- Promotion of employment and social cohesion;
- Protection and efficient use of resources.

National policies only gradually adapted to the ERA principles:

- In terms of optimal transnational co-operation and competition Cyprus focuses on EU-triggered initiatives, such as Joint Programming Initiatives, ERA-NETs and Art.169/185 network projects. There is no participation in Joint Technology Initiatives.
- The labour market for researchers is regulated with no institutional autonomy. Researchers accounted for about 0.42%-0.45% of total active population in the period 2010, 2012 (last available data) compared to a EU28 average of 1.05% (2011 data). There is a trend of outflow of researchers which was amplified by the crisis but there are no official data. There is no explicit policy regarding the Principles for Innovative Doctoral Training (IDT) either at the national level or at the institutional level. However, similar principles (excellence and international cooperation) are adopted internally and independently of the IDT. Researchers are civil servants and their recruitment and promotion is highly inflexible. But internationalisation is adopted: The EURAXESS Cyprus portal is managed by RPF and provides practical information. All universities and research institutes in Cyprus have endorsed the Charter and Code. The University of Cyprus and Cyprus Institute of Neurology and Genetics were acknowledged for their progress in HR Strategy for Researchers and were awarded HR Excellence in Research logo in 2010. Two more HEIs (Open University and European University) are in the pipeline for receiving this certification.
- There is no national policy on open access. The library of the University of Cyprus (UCY) has been designated as the Cyprus OpenAIRE H2020National Open Access Desk coordinating also the activities under Pasteur and Foster in Cyprus Open access initiatives are undertaken by HEIs and other research organisations and open access cost will be eligible in the future national calls. E-infrastructures are not well developed.

Cooperation between academia and enterprises is limited and supported institutionally through the implementation of the project 'Development and operation of Industry Liaison Offices (ILO) in Universities operating in the Republic of Cyprus' since 2009 and practically through financial incentives for cooperation.

Financial incentives exist mainly for R&D and there are limited (but increasing) schemes for addressing innovation (scheme by MECIT Enhancement of Business Innovation in Cyprus, grant scheme for innovative products and services, Innovation Packages, Innovation Houses), targeting SMEs. Open innovation is limited since there is a low number of patent applications and limited registration of Intellectual Property Rights (IPRs). To make up for this tax incentives for the protection of IPRs were introduced in May 2012. Furthermore, tax incentives for innovative businesses were introduced in July 2014, through modification of the Income Tax Legislation. Knowledge transfer is ensured through ILOs and the Business Support Centre, while there is no explicit knowledge transfer strategy. The creation of a National Knowledge Transfer Office announced for 2015is expected to enhance IPR protection and knowledge transfer.

The structural challenges, for which the government is aware and trying to address them (despite national austerity measures) include:

- Limited human resources for research
- Limited demand for R&D
- Limited propensity to innovate through exploitation of research results
- Limited number of high-tech companies in the country
- To broad research orientation in need of more prioritisation

TABLE OF CONTENTS

1. Overview of the R&I system

1.1 Cyprus in the European RDI landscape

Cyprus is the third largest Mediterranean island and one of the smallest member states of the European Union with a population of 858,000 people at the end of 2013 (0.2% of the EU-28). The economy is experiencing financial distress since 2011, initiated by the global financial crisis but exacerbated by the losses suffered from a restructuring of Greek state bonds, in which the local banking system had invested heavily. The debt crisis culminated in March 2013, when the EU-ECB-IMF Troika and the Cyprus government agreed to a Memorandum of Economic and Financial Policies including a financial rescue package, structural reforms and a mandatory taxation of bank deposits above €100,000. As a result, GDP in current prices increased slightly in 2011 (0.4%) but then contracted by 2.4% in 2012, 5.4% in 2013 and is expected to decrease further by 4.3% in 2014. GDP per capita was at €21,000 in 2011, €20,500 in 2012 and €19,000 in 2013 (74% of EU-28 average)[1].

Wholesale and retail trade, transport, accommodation and food service activities account for over 24.3% of Gross Value Added (GVA) at basic prices in 2013, followed by public administration, defence, education, human health and social work activities (22.1% of GVA). Real estate activities accounted for 11.6% of GVA, financial and insurance activities accounted for 10.2% of total GVA, while industry (except construction) accounted for 8.7% of GVA[2]. The structure of the Cypriot economy thus explains why R&D activity is not very high. The economy is dominated by micro, small & medium enterprises, which make up 99.8% of all establishments[3].

At the end of 2013, total GERD was at €86.1m (0.48% of GDP), marking an increase of 3.3% compared to 2012. Cyprus ranks last before Romania in terms of R&D intensity among all EU member states (GERD has been fluctuating around 0.5% of GDP in the period 2009-2012, less than 1/4 of the EU average). GERD/GDP was at 0.48% in 2013. The R&D intensity target has been set at 0.5% of GDP by 2020 and R&D will need to increase by 1.0% annually to meet this target[4]. The significant fluctuations of GDP determine to a large extent the evolution of R&D intensity. The 2020 target might be revised upwards in view of the forthcoming changes in RDI governance and the new strategy[5].

Although there is a lack of recent statistics for turnover from innovation, latest available data (2010) placed Cyprus on the 8th position among EU Member States with innovation accounting for 14.7% of total turnover, slightly above EU-27 average (13.4%)[6].

[1] Eurostat, GDP (nama_gdp_c)
[2] Eurostat, Gross Value Added at basic prices (nama_nace10_c)
[3] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 10
[4] Europe 2020 targets Research and Development, pg. 5
[5] Commission Staff Working Document, Assessment of the 2014 National Reform Programme for Cyprus, June 2014, pg. 15
[6] Eurostat- Turnover from Innovation as % of total turnover (tsdec340)

1.2 Main features of the R&I system

The system is persistently dominated by public funding. HERD and GBAORD account for 71% of GERD (last available data 2012). Industry-financed GERD accounts for 10.9% of total GERD, private non-profit less than 1% and the rest (17.5%) coming from abroad.

Cyprus is a single region and policy is drafted and implemented centrally. Local authorities, namely districts, municipalities and communities only exceptionally play a role in implementing RTDI policies. Research organisations are concentrated in the capital area (Nicosia). Recent efforts to reach out to smaller municipalities include awareness raising events.

1.3 Structure of the national research and innovation system and its governance

Formally the National Council for Research and Innovation (NCRI) composed of cabinet ministers (Finance, Energy-Commerce-Industry and Tourism, Education and Culture, Transport, Communications and Works, Agriculture, Rural Development and Environment and Health) is the highest body in hierarchy, with the exclusive task of formulating long term R&D strategy. The Cyprus Scientific Council (CSC) is a technical advisory board composed of 18 high calibre scientists, responsible for strategy and planning. In reality the two Councils have not performed as initially designed. In particular they were slow in addressing the key challenges of the R&D system as defined in section 5.2 below (limited human resources for research, limited demand for R&D, limited propensity to innovate, limited number of high-tech companies in the country, too broad research orientation) and therefore a National Committee for Research, Innovation and Technological Development (NCRITD) was appointed in September 2013 with the target to make recommendations for a new RDI structure and governance. A report was finalised and formally presented to the government in the spring of 2014. A proposal that takes its findings into consideration is expected to be submitted to the Council of Ministers for a decision for an enhanced governance system in this area in the near future.

R&I policy and budget allocations are a responsibility of the Directorate General for European Programmes, Coordination and Development (DG EPCD) – ex Planning Bureau[7]. At the implementation level, research and innovation activities are integrated under the Research Promotion Foundation (RPF), an autonomous agency under the supervision of DG EPCD. The Technology Unit of the Ministry of Energy, Commerce, Industry and Trade (MECIT) launches innovation policy measures. The Industrial Development Unit of MECIT

[7] Following the Council of Ministers Decision No. 75141, dated 24 May 2013, the Unit is responsible for handling issues related to:
(a) the European Funds and Programmes, such as the European Investment and Structural Funds, the EU Competitive Programmes and the grants provided by the countries of the European Economic Area and Switzerland.
(b) the coordination of government work, which entails tasks such as monitoring the implementation of the Memorandum of Understanding with the European Commission.
(c) development and horizontal issues, such as Research, Technological Development and Innovation, Lifelong Learning, Corporate Social Responsibility and the "Europe 2020"
(d) the Development and Government Strategy Document

operated independently up until recently with the responsibility for supporting entrepreneurship and investments but the two units merged within the year 2014.

In the current governance scheme there are no dedicated bodies for policy advice. The RPF and the DGEPCD organise policy advice internally.

Research performers are businesses, Higher Education Institutes (HEIs), Research Performing Organisations (RPOs) and the private non-profit sector.

The role of public universities (University of Cyprus and Cyprus University of Technology) is pivotal for research. The Open University has very few R&D projects. HEIs account for more than 50% of total GERD from 2011 onwards.[8]. In the period 2009-2013, R&D performance shifted from the business enterprise sector and the government to the HEI, accounting at the end of 2013 for 57.3% of total GERD (€49.3m), as opposed to 46.1% at the end of 2009 (€38.3m). HERD per capita increased from € 41.3 in 2008 to €56.9 at the end of 2013, compared to an EU-28 average of €125. New HEIs are recently being created and focus mainly on teaching and to a lesser degree research. The third mission is emergent, as HEIs increasingly recognize cooperation with the business sector and attracting funds from abroad or companies as a positive aspect for the career or faculty members.

GERD performed by the government decreased steadily in the period 2008-2013 from €21.7 per capita in 2008 to €14.3 per capita in 2013[9]. Major RPOs undertaking research are the Agricultural Research Institute (ARI), the Cyprus Institute of Neurology and Genetics (CING) the Cyprus Institute (CyI) [10], operates three Research Centres[11], the State General Laboratory, the Department of Fisheries and Marine Research and the Meteorological Centre. Additionally the Cyprus International Institute (CII) for the Environment and Public Health, the joint venture with the Harvard School of Public Health, implements research in the respective sectors.

GERD performed by the private non-profit sector is minimal and fluctuated around €11m, with a peak of €13.8m at the end of 2011.

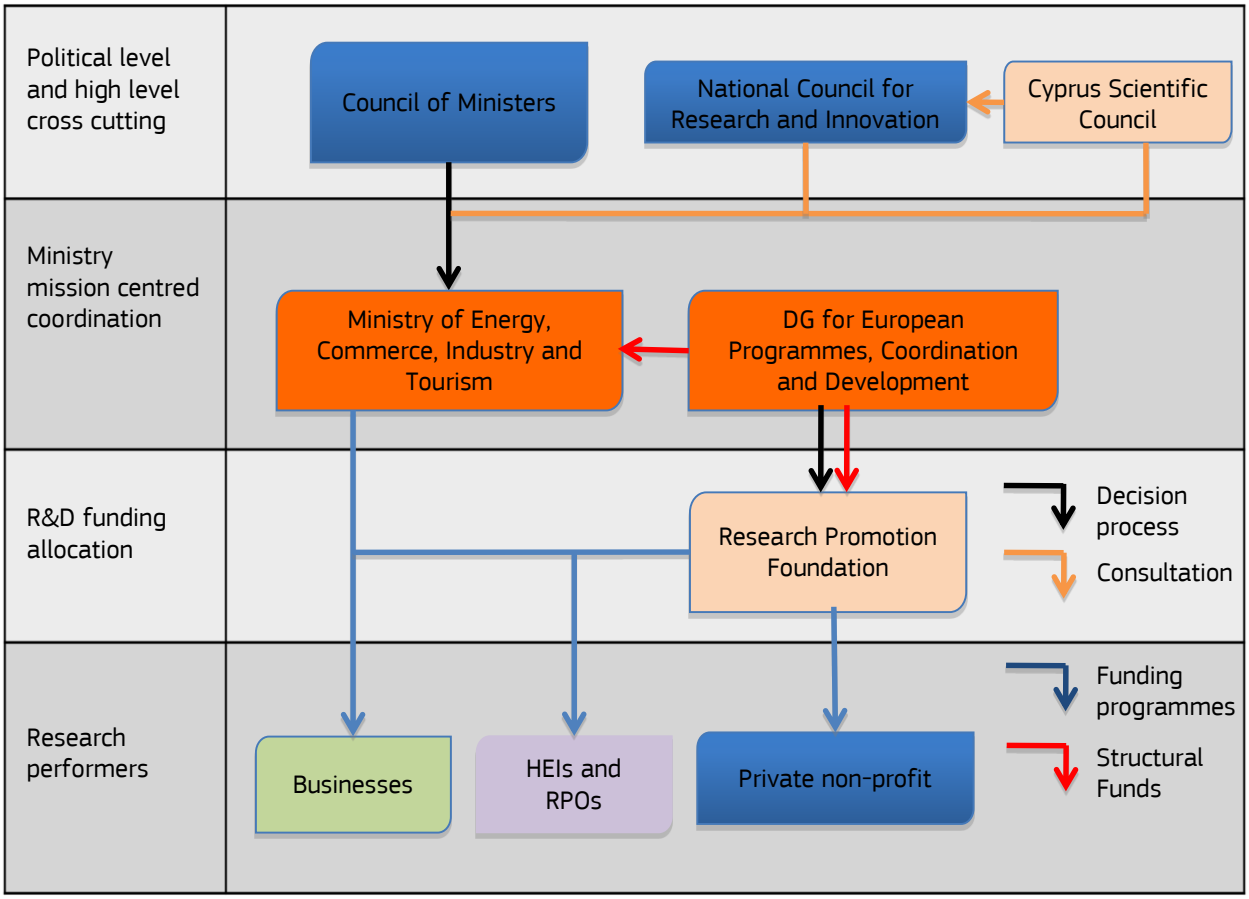
BERD has been persistently low (15.4% GERD) and steadily decreasing since 2008 but picked up in 2013. BERD per capita had decreased from € 21.6 at the end of 2008 to €13.9 at the end of 2012, compared to an EU-28 average of €338.1. BERD per capita increased to € 15.4 at the end of 2013 (same level as in 2011). Research in the business sector is dominated by few large national companies in pharmaceuticals as well as medium-sized companies and start-ups in ICT (in 2011 approximately €4m each). Multinationals do not invest in research in the country.

No significant changes occurred in R&D structure in the last five years. The establishment of NCRI and CSC in 2010 were introduced but never really got off the ground. The appointment of the NCRTDI in 2013 and its delivery of a report on new RDI governance in 2014 are expected to shape RDI policy in the next years.

[8] Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)
[9] Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)
[10] Including the MIT, the University of Illinois and Centre de Recherche et de Restauration des Musées de France
[11] The Energy, Environment and Water Research Centre (EEWRC), the Science and Technology in Archaeology Research Centre (STARC) and the Computation-based Science and Technology Research Centre (CSTRC)

Main changes in 2009
- *No major changes*
Main Changes in 2010
- *Establishment of the National Council for Research and Innovation (NCRI)* - *Establishment of the Cyprus Scientific Council (CSC)*
Main changes in 2011
- *Creation of a Technology Unit in MECIT for the promotion of technology and entrepreneurship*
Main changes in 2012
- *Involvement of MECIT in the absorption of structural funds*
Main Changes in 2013
- *Planning Bureau changed its name to Directorate General for European Programmes, Coordination and Development (DGEPCD) and its role was extended to the coordination and implementation of the MOU between Cyprus, IMF and ECB, the implementation of Europe 2020 strategy, the coordination and implementation of EU programmes and the establishment of an information centre for the public and businesses for all the horizontal EU Programmes* - *Ministry of Commerce, Industry and Tourism (MECIT) was renamed to Ministry of Energy, Commerce, Industry, Tourism (MECIT)* - *Appointment of a National Committee for Research, Innovation and Technological Development (NCRITD) to recommend new more effective RTDI governance*
Main Changes in 2014
- *Finalisation of NCRITD report on new RDI governance* - *RIS3 report finalised* - *Merge of the Technology Unit with the Industrial Unit of MECIT* - *Publication of Law 115/2014 introducing the definition of innovative business*

Figure 1: Current RDI structure



2. Recent Developments in Research and Innovation Policy and systems

2.1 National economic and political context

The Cyprus economy is experiencing a financial crisis, which started with the losses that the local banking system suffered in 2011 from the restructuring haircut of Greek state bonds. The EU-ECB-IMF Troika and the Cyprus government agreed to a financial rescue package and a Memorandum of Economic and Financial Policies.

In 2013, real GDP contracted by 5.4%. It is expected to decrease further by 4.3% in 2014 and to start growing again in 2015 and 2016 by 0.9 and 1.6, respectively. On the fiscal side, there was an improvement of the current account deficit, which decreased to 1.9% of GDP, from 6.9% of GDP in 2012. In the first quarter of 2014, a primary balance surplus of 0.7% of GDP was recorded[12]. Primary surplus is expected to reach 2.5% of GDP in 2017 and 4% in 2018[13].

Amidst this crisis, there was an outflow of deposits and a rising share of Non- Performing Loans (NPLs), which affected the liquidity of local banks. In the first quarter of 2014, banks decreased their reliance on the central bank by € 250 m and liquidity was further enhanced through the recapitalisation of the Cooperative Central Bank by the State by €1.5 billion and the divestment of foreign exposure by the Bank of Cyprus[14].

Unemployment increased in 2013, though at a slower pace than anticipated, principally due to emigration. Unemployment was at 16.9% at the end of 2013[15] and it is expected to reach 19.2% by the end of 2014. It is estimated that about 90,000 additional new jobs will have to be created in the period 2016-2020 in order to bring the employment rate to the pre-crisis rate of about 70% of total active population[16]. About 28% of the population was exposed to poverty and social exclusion at the end of 2013, compared to 27.1% at the end of 2012 and 24.1% at the end of 2011[17].

Regarding the political context, the deterioration of the Cyprus-Turkey relations stimulated by the on-going gas drilling research programme in Cyprus Exclusive Economic Zone (EEZ), has opened up Cyprus to alliances with Greece and Egypt. In October 2014, a strategic alliance cooperation for research in the maritime area between Greece and Cyprus was signed.

The financial crisis of the last three years has shifted efforts towards the improvement of macroeconomic indicators (budget deficit) to ensure fiscal consolidation, thus reducing structural support to R&I and hence slightly deteriorating the position of Cyprus in global scoreboards. More specific:

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[12] The Economic Adjustment Programme for Cyprus Fourth Review - Spring 2014, Occasional Papers 197/July 2014

[13] Memorandum of Understanding on Specific Economic Policy Conditionality, September 2014

[14] The Economic Adjustment Programme for Cyprus Fourth Review - Spring 2014, Occasional Papers 197/July 2014

[15] The Economic Adjustment Programme for Cyprus Fourth Review - Spring 2014, Occasional Papers 197/July 2014

[16] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014

[17] Eurostat, People at risk of poverty or social exclusion by age and sex. Last update 16.09.2014

Cyprus moved to 44th position in the World Bank (WB) indicator "starting a business" in 2014, compared to 35th position in 2013. Cyprus moved down one position in WB indicator "ease of doing business" and two positions in WB indicator "protecting investors"[18];

- Cyprus ranked in the 58th position (out of 148 countries) in the Global Competitiveness Index 2013-2014 of World Economic Forum, the same position as in GCI 2012-2013 and down about 10 positions from GCI 2011-2012. The Index acknowledges access to financing, excessive bureaucratic hurdles and insufficient capacity to innovate as the three most problematic factors for doing business in Cyprus[19].

2.2 National R&I strategies and policies

The R&I system in Cyprus is more recent than in other Member States as it was practically developed during the negotiations for the accession to the EU. Policymaking bodies, implementation agencies and even HEIs were created and developed in the last decades.

Coordination is limited and takes place mainly in the context of policy design. In 2010 a high-level political involvement was envisaged and two Councils were created, namely the Cyprus Scientific Council (CSC) and the National Council for Research and Innovation (NCRI):

- NCRI is composed of 6 cabinet ministers (Finance, Energy-Commerce-Industry and Tourism, Education and Culture, Transport, Communications and Works, Agriculture, Rural Development and Environment and Health) and the Chairman and Vice-Chairman of CSC (ex officio, no voting rights). NCRI is the highest body in hierarchy, with the exclusive tasks of formulating long-term R&D strategy, assigning projects to RFP, approving of the research budget managed by RFP, providing recommendations to the Cabinet regarding the composition of CSC and the Board of Directors of RFP;
- The CSC is a technical advisory board composed of 18 high calibre scientists, responsible for strategy and planning.

During the four years that have elapsed since their establishment, the two Councils rarely convened and the structure never really operated. The CSC met a few times, changed Chair once, started preparing priorities to be adopted by the government but has run out of steam recently and it is unlikely that it will reconvene in its present form. The only formal decision undertaken by CSC was the confirmation of GERD/GDP target for 2020[20].

In 2013 the government appointed a National Committee for Research, Innovation and Technological Development (NCRITD) to prepare the new RDI structure and governance. A report was finalised and formally presented to the government in the spring of 2014.

The report proposed a new structure (Figure 2), whereby NCRITD evolves into a National Council of Research, Innovation and Entrepreneurship (NCRIE), which designs and monitors R&D strategy, advising the President of the Republic and the Commissioner of Entrepreneurship and Innovation (CEI).

[18] http://www.doingbusiness.org/data/exploreeconomies/cyprus/, November 2014
[19] Global Competitiveness Report 2013-2014, World Economic Forum
[20] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 63-64

The latter is proposed to be a post that will be created to take political responsibility for R&I strategy and policy. Another recommendation is the creation of a new independent Directorate General of Research, Innovation and Entrepreneurship (DGRIE) coordinating innovation efforts across all Ministries and DGEPCD. A Committee of Chief Scientists is recommended to be appointed at each Ministry, as central points of contact, coordinates Chief Scientists.

At the operational level, RFP is to be renamed Organisation of Research and Technology Transfer (ORTF) and undertake also the role of technology transfer agency including spin offs from HEIs and RPOs. Innovation remains a responsibility of MECIT with the merger of the existing two units (Technology, Industrial) into a larger one, which will be coordinating entrepreneurship and innovation and will be monitored by DGRIE [21].

There are, at the moment, discussions at the highest political level regarding which of the recommendations will be implemented and how.

RDI structure in its current form has limited coordination mechanisms mainly due to the small size of the country, leading actors to believe that informal coordination is sufficient. However, the introduction of systematic (but ad hoc) consultations for all policy documents (including HEIs, research organisations and the industry) and the design of specific measures have improved networking. The proposed new RDI structure and strategy includes formal consultation processes with all important stakeholders (HEIs, RPOs, private and public sector)[22].

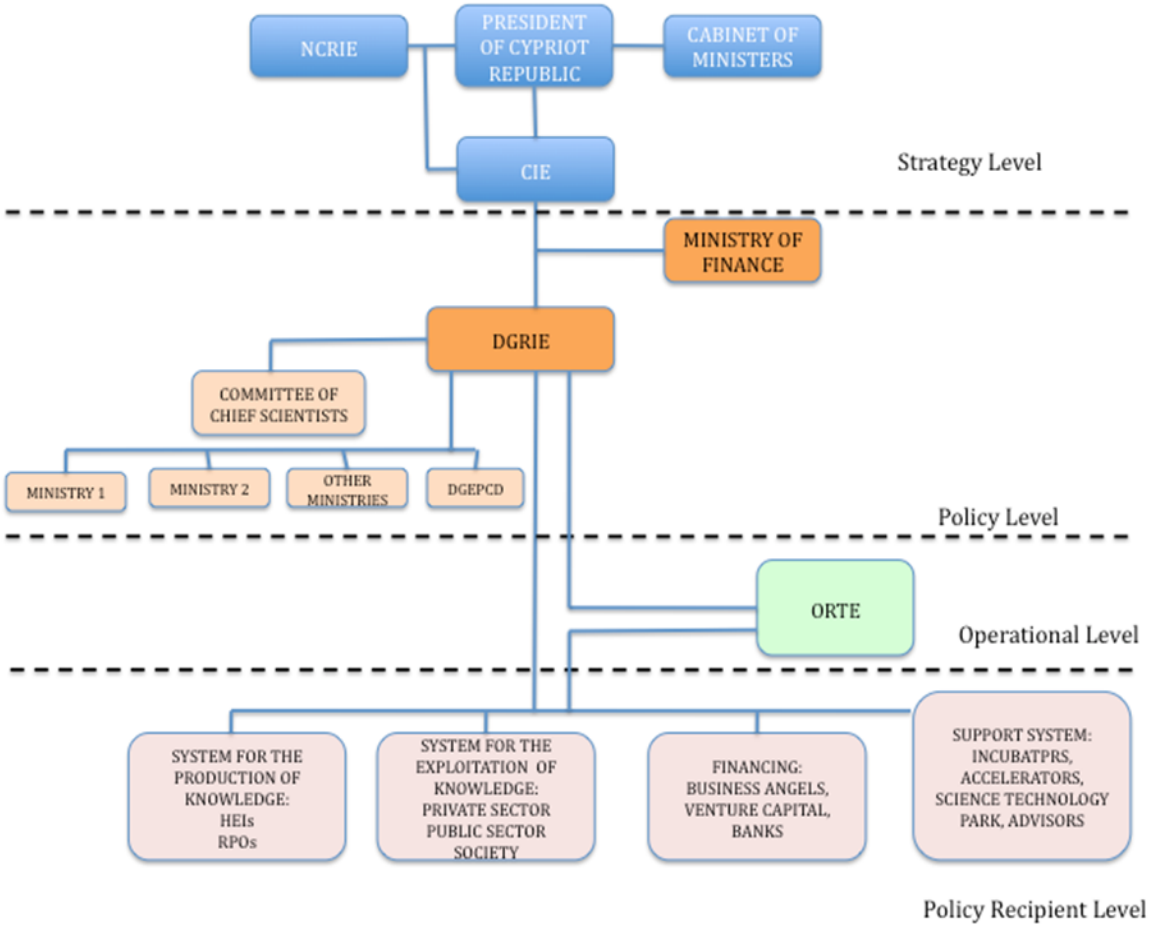
In the past there has never been an R&I strategy adopted by the Council of Ministers. A policy document was prepared but was never formally adopted. Ideas discussed by the CSC never reached the government either. The *de facto* strategy was reflected in the DESMI of the RPF, which included a policy mix of measures addressing academic research, business research, R&D cooperation project, support of infrastructure and human resources development. It had the objective of increasing R&D spending to 1% of GDP by 2010 (later revised to 0.5% of GDP). There were calls focusing on the Strategic and Multi-thematic Development of Research, the Enhancement of Human Resources, the Development of Industrial Research and Innovative entrepreneurship, the Development of Infrastructure and Large Scale Investments, and International Cooperation and Networking.

MECIT played a limited role until 2012. It was involved in entrepreneurship support (not requiring innovative entrepreneurship) and kick-started the idea of a technology park, which was still in the process of implementation at the end of December 2014. This changed in 2012, when the RPF was unable to absorb all the SF foreseen for R&I. The Steering Committee did not want to reduce the R&I envelope, hence a compromise was found with the active involvement of MECIT through a pilot project supporting business innovation. Based on this experience MECIT is designing a set of measures supporting innovation, which will start being launched in 2015.

[21] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 262-283

[22] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 106-116

Figure 2: Proposed RDI structure



Source: Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek)

NCRITD provided the guidelines for a new strategy for Research, Innovation and Entrepreneurship (RIE) in its final report in spring 2014. The proposed RIE will be based on 9 axes:

1. the development, adoption and implementation of a long term national development strategy that will support Cyprus technological, social and economic development,
2. the creation of an efficient public governance mechanism that will ensure the implementation of this strategy,
3. the development of a new multi-level (education, industry, society, state) culture of creativity, innovation and entrepreneurship,
4. the development of sustainable research and academic excellence,
5. the collaboration of HEIs and RPOs with the industry,
6. the commercialisation of new knowledge and technology for high value products and services,

7. the creation of a favourable business environment that will encourage innovation for the production of high value products/services,
8. the transformation of Cyprus into a regional centre of research, innovation and entrepreneurship, and
9. the development of strategic R&D alliances at an international level[23].

In parallel, an encompassing Smart Specialisation Strategy (hereafter referred to as SSS or RIS3) has been prepared by DGEPCD with the support of RPF and the Cyprus University of Technology (CUT). It is expected be formally submitted to the European Commission by December 2014[24]. The Peer Review organised by the IPTS (15-16 May 2014) considered it appropriate and of high quality.

At this stage, and before a formal strategy is approved, RIS3 and its combination with the Operational Programme 2014-2020 constitute the national strategy. There is full congruence between the two. The RIS3 Governance Board (see description under 2.6) will play an active role in strategy implementation. There is an idea for the development of a National Strategy Document in the future, which is expected to include and complement RIS3, but there is no precise timetable. The development of such a strategy document will depend i.a. on the availability of additional national funding opportunities for R&I areas/initiatives that are not covered by the Structural Funds.

The budgetary framework follows the 7-years cycle of the Structural Funds (SF). A change that is expected during the new programming period is adding more flexibility in individual budgets: while the broad lines of funding will be agreed initially, bi-annual internal adjustments are foreseen by the RPF.

The European Structural and Investment Funds (ESIF) will be the main sources of R&I funding in the period 2014-20. The bulk of this funding will be spent through the DESMI 2014-2020. Funding priorities will include:

- Restructuring of the economy and enhancement of its competitiveness;
- Promotion of employment and social cohesion;
- Protection and efficient use of resources[25].

Cyprus has been actively involved in EU R&I cooperation mainly by supporting national research teams to participate in FP7 and ERAnets. In terms of a net distributional effect Cyprus has a surplus attracting approximately € 1.5 for every € spent on FP7. This corresponds approximately to € 22 per capita, which makes Cyprus rank 8th in the EU[26]. Given the size of the country its track record has been satisfactory. The same approach will continue for creating synergies with Horizon 2020.

No new R&I law or regulation was adopted in 2014. A full set of needs for the modernisation of the legal framework and the new measures to be launched during the

[23] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 224-244

[24] http://www.dgepcd.gov.cy/dgepcd/dgepcd.nsf/page44_en/page44_en?OpenDocument, December 2014

[25] Cohesion Policy and Cyprus, June 2014

[26] http://www.peter-fisch.eu/european-research-policy/think-pieces/ pg. 5, 6 and 7

current programming period are included in the RIS3 as well as in the proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus[27].

The only change observed in recent years (2012) was the reallocation of resources from the RPF to MECIT for the pilot programme of innovation. The new approach of MECIT is to focus on cooperation for innovation rather than on one-to-one grants. The MECIT R&I support measures planned for the current programming period are all co-funded by the SF:

- The funding of RTDI of SMEs with a total budget of € 17 m (45%-70% funding from SF). The first call is expected in 2015 and the programme will last 2-3 years. The target is to finance 210 companies by the end of the programme[28].
- The establishment of Innovation Houses in 2015, addressed to the unemployed and students, and aiming to provide guidance and training for the establishment of innovative businesses. The programme is expected to last 2-3 years with a total budget of € 1.2m. It will bring together academics and successful businessmen for training young people. It is envisaged that 4 innovation houses will be established by the end of the programme, encompassing 100 groups of 5 people each[29];
- The establishment of Business Innovation Centres (BIC) accredited by the European Business Network, which will provide advisory services to public and private businesses for the development of competitive products. The foreseen budget is € 5.3 m and the programme will last 2-3 years; the first call is expected in 2015[30].
- The creation of clusters through strategic partnerships between competing or complementary businesses. The total budget of the programme will be € 3 m and is expected to last 2-3 years. The first call is expected in 2015 and the objective is to create 5 clusters by the end of the programme. Intelligence suggests that the likely interested businesses will be in agricultural sectors (wine), ICT, construction and transport[31].
- The provision of Innovation Packages to innovative businesses, businesses cooperating with RPOs, start-ups and joint ventures. The programme will provide limited funding (€5,000, €10,000 or € 20,000) for a specific purpose and it will run for 2-3 years, with the first call expected in 2015. Total funding will amount to €4.0 m. The target is to have offered 200 Innovation Packages by the end of the programme[32];
- The launch of a programme for the provision of i-cloud services to SMEs. The programme will have a total budget of € 1.2 m. It is expected to last 2-3 years and will provide i-cloud services to about 100 companies. The first call is expected in 2015[33].

[27] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek)
[28] Information provided by the Ministry of Energy, Commerce and Industry
[29] Smart Specialisation Strategy Cyprus, September 2014 pg. 371
[30] Smart Specialisation Strategy Cyprus, September 2014 pg. 369
[31] Information provided by the Ministry of Energy, Commerce and Industry
[32] Smart Specialisation Strategy Cyprus, September 2014 pg. 370
[33] Information provided by the Ministry of Energy, Commerce and Industry

The long awaited Science and Technology Park (STP) is taking a new form; the austerity budget has provoked a shift of strategy towards looking for a strategic private investor to co-fund the Park in the form of a real estate development project. To this end, MECIT launched an Expression of Interest (EOI) addressed to investors wishing to undertake the establishment and operation of the STP. The deadline expired in March 2014 and policy announcements are expected in the near future. MECIT is studying good practices, while the Ministry of Finance investigates the best possible alternatives for using public land rather than expropriating the land initially earmarked for the Park. The Government is currently considering outsourcing a techno-economic/feasibility study for the STP and after that, preparing and launching a formal tendering procedure for the establishment and operation of the STP[34].

Despite the efforts to address innovation and adopt new strategic orientations there are several problems remaining: Frontier science is limited because of the small size of the research community. The excellence-driven initiatives are addressing frontier research to the extent that this is compatible with current skills. Education is still disentangled from R&I. In particular linking funding with the accreditation of HEIs, the orientation of doctoral studies and the absence of legal provisions for university spin offs are areas where more coordination is needed. The DGEPCD sensitised by the report of the NCRITD is well aware of the problem, but this can only be resolved once new governance is adopted and one institution is assigned political responsibility and accountability.

In May 2013, RPF invited interested parties to express their interest in participating in the ESFRI Roadmap. A total of 40 proposals were submitted by July 2013 for 19 infrastructures[35]. In the current period only one social infrastructure is already decided to be funded (December 2014) by RPF upon request of the European University of Cyprus participating in it. In the last quarter of 2014, selection criteria will be discussed in order to prioritise and decide how to structure the process of the national commitment letters. The criteria will probably include expressed interest, historic data, potential of national networking and critical mass, but they are still subject to deliberations. A first draft is expected in 2015.

A mapping exercise has started in order to assist the preparation of the national infrastructure roadmap. Investment in ESFRI projects will be part of this roadmap. Criteria for a comprehensive strategy will be developed to prioritise national funding. A call is planned but overall it is already decided that national funding for infrastructure will be connected to the RIS3 priority areas. The allocation of national funds will also take the Horizon 2020 Teaming Initiative[36] into consideration. This development shifts part of the ex-ante evaluation and selection criteria to the European Commission ensuring European interest and impartiality. Both ESFRI and the national infrastructure discussions are at an early stage of preparation and are expected to mature in the year to come.

By and large governance is expected to change and improve. R&I policies are progressing. Research has been faster to launch and innovation is now following with a set of initiatives principally targeting SMEs (Innovation Houses, RTDI funding of SMEs, Innovation packages). Coordination with education is lacking and needs reinforcement.

[34] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.13

[35] http://www.research.org.cy/EL/news/3580.html, November 2014

The long-awaited new governance structure leading to better overall coordination and strategic approach is now expected to be implemented following the report of the NCRITD and the adoption of RIS3. However, at this stage, there is still limited coherence, with education and agricultural research policies being designed independently from R&I.
The year 2014 marked the completion of programmes launched in previous years and there were practically no new calls. Internal monitoring indicates that for DESMI about 50% of projects were delivered; in the MECIT pilot project, two projects (out of 39) completed with very satisfactory results[37]. The remaining projects are expected to be concluded without any significant problems or delays by the end of 2015. New calls will be launched in 2015, when the Managing Authority will have completed all the necessary procedures (electronic submission, platforms etc.).

Key research programmes in process of conclusion include[38]:

- DIDACTOR (2008) dedicated to the attraction of young researchers at post-doc level in enterprises and research centres for a maximum funding per project of € 25,000 (undisclosed budget but in excess of €1 m);
- Research for Enterprises Actions (2008), aiming to stimulate research interest in the Cyprus business world and to provide incentives for cooperation between enterprises and research centres from all economic sectors (€ 11.3 m);
- Thematic Actions: Technology, Information Society, Sustainability, Society, Economy, Health (2008), for the support of research activities of local research institutes, and the promotion of scientific collaboration between local and foreign research institutes as well as between academia and the industry (€ 6.6 m).

In July 2014, Law 115/2014 was issued which provided a definition of innovative companies and extended applicable tax exemptions to R&D expenses also to R&D concluded by innovative companies and to the purchase of shares of innovative companies (Art.4).

In "Desmi 2008-2010", key thematic areas in the period 2009-2011 were "ICT/ information processing and telecommunications", the "Social and economic aspects", "Biological science", "Industry and technology" and "Materials and construction", accounting for 70% of total funding[39].

Cyprus participates in the European Innovation Partnership (EIP) on Active and Healthy Ageing, which aims to increase the average healthy lifespan in the EU by 2 years by 2020[40]. Members are the Open University of Cyprus and Maglid Technologies Holdings Limited; they participate in the initiative for Patient medication adherence programs and the initiative for Knowing Effects on Healthy Life Years.

In 2013, RPF announced its commitment to allocate more than €4m to Joint Programme Initiatives (Water Challenges for a Changing World, URBAN EUROPE: Global Challenges - Local Solutions, Agriculture, Food Security and Climate Change Cultural Heritage and Global

[37] Information from interview, see interviewee list Annex 1b
[38] http://erawatch.jrc.ec.europa.eu/erawatch/opencms/search/advance-search.html#listado
[39] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013
[40] https://webgate.ec.europa.eu/eipaha/index/aboutus, November 2014

Change: A New Challenge for Europe ERA-NET+), EUROSTARS and Ambient Assisted Living programme[41] .

In the period 2014-2020 and under the priority "Strengthening research, technological development and innovation" emphasis will be placed on the promotion of R&D collaborations between RPOs, HEIs and the private sector in the areas of tourism, energy, agriculture, construction, shipping, health, environment, ICT and communications through the participation in JPI (JPI FACCE, JPI Water, Solar- ERANET) and joint research programmes[42].

In 2016, a first call is expected for Social innovation products/services. The programme will run for 2-3 years, with a total budget of € 3 m and about 15-20 projects will be funded[43].

The participation of Cyprus into the Innovation Investment Package is also expected to stimulate innovation in sectors of societal challenges.

Summarising the above, there seems to be a shift of resources in the current programming period (2014-2020) towards societal challenges, which were treated in previous years only through European joint programmes.

During the crisis GBAORD diminished by 25%. Generic R&D policies dominate thematic/sectoral, as evidenced by the allocation of GBAORD (Table 1). *General advancement of knowledge* persistently remains around 77% with block funding financed from General University Funds (GUF) increasing by 20% from 2011 to 2013, while *General advancement of knowledge* from other sources than GUF diminishing accordingly. In absolute amounts all thematic areas saw their funds reduced with the exception of *Culture, recreation, religion and mass media.*

Health, Environment and Agriculture accounted for 15%-16% of GBAORD. While Energy has no share in GBAORD (an explanation being that it is only funded through competitive calls), Cyprus had the highest scientific impact in the energy field in the period 2006-2010, along with Israel, Switzerland, Denmark, Germany, Portugal and Spain, with the greatest percentage of its publications in the 10 % most-cited publication[44]. The share of Energy is expected to increase in the next years due to the exploitation of Cyprus Exclusive Economic Zone.

[41] http://www.research.org.cy/EL/news/3482.html, November 2014
[42] Cyprus Partnership Agreement 2014-2020, May 2014
[43] Smart Specialisation Strategy Cyprus, September 2014 pg. 360
[44] Innovation Union Competitiveness report 2013, Research and Innovation

Table 1: Total GBAORD (€ million)

	TOTAL GBAORD (€ million)			GBAORD %		
	2011	2012	2013	2011	2012	2013
Exploration and exploitation of the earth	0,5	0,2	0,1	0.6	0.4	0.27
Environment	0,8	0,5	0,5	1.0	0.7	0.8
Exploration and exploitation of space	0,0	0,0	0,0	0	0	0
Transport, telecommunication and other infrastructures	0,9	0,7	0,4	1.28	0.9	0.7
Energy	0,0	0,0	0,0	0	0	0
Industrial Production and Technology	0,0	0,0	0,0	0	0	0
Health	2,3	1,9	1,9	2.9	2.7	3.7
Agriculture	9,7	9,0	6,9	12.0	12.9	11.6
Education	2,8	3,0	2,5	3.5	4.3	4.2
Culture, recreation, religion and mass media	0,4	0,4	0,5	0.5	0.6	0.9
Political and social systems, structures and processes	0,0	0,0	0,0	0.02	0.03	0.01
General advancement of knowledge: R&D financed from General University Funds (GUF)	27,3	26,8	24,2	33.9	38.4	40.7
General advancement of knowledge: R&D financed from other sources than GUF	35,8	27,3	22,5	44.4	39.0	37.78
Defence	0.0	0.0	0.0	0.0	0.0	0.0
Total civil R&D appropriations	80.6	69.9	59.5	100.0	100.0	100.0

Source: Eurostat, Total GBAORD by NABS 2007 socio-economic objectives

2.3 National Reform Programmes 2013 and 2014

Innovation is a priority in the current programming period (2014-2020); the grant scheme for innovative products and services implemented in 2012 progressed smoothly and about 40 innovative products are expected to enter the market in 2014 and 2015. The same grant scheme was-launched in 2014 and covers both innovative products and processes; it include newly created companies and will encourage cooperation between businesses and research centres. It is expected that the scheme will help develop approximately 100 innovative products-services-processes, 30 cooperation agreements of enterprises with research centres, create 80 new jobs, raise €5 m in private funding and help establish 30 new SMEs.[45].

[45] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.12

Innovation Houses will be established in 2015 to provide guidance to the unemployed and students. It is expected that the scheme will help create 40 new SMEs by its completion (see section on policy initiatives above)[46].

In the period 2014-2020, measures are foreseen also for the increase of youth employment. To this end, a National Action Plan for Youth Employment was approved in December 2014 with a total budget of € 47.2m[47]. In order to enhance cooperation between HEIs and the business sector, 2,000-university graduates were placed in enterprises/organisations. On-going are the New Modern Apprenticeship, the Post-Secondary Vocational Education Institutes, the job placement and training of young unemployed tertiary education graduates, the accelerated training of young newcomers and other unemployed persons, training programmes for upgrading the skills of unemployed persons, a scheme for the improvement of the employability of the unemployed, a scheme for the improvement of the employability of economically inactive women, the enhancement of cooperation between universities and enterprises, the development of a competence-based system of vocational qualifications and the reform of the curricula at the secondary and tertiary education[48].

Based on the analysis presented in the Cyprus National Reform Programmes 2013 and 2014 there were no significant achievements in the research sector in 2013. The R&D intensity target of 0.5% of GDP by 2020 seems feasible though it could be revised upwards in view of the forthcoming changes in RDI governance and the new RTDI strategy.

2.4 Policy developments related to Council Country Specific Recommendations

In the EU/IMF financial assistance programme for Cyprus there are no direct R&I commitments. R&I will be indirectly influenced through the structural financial reforms, the restructuring of the banking sector, fiscal consolidation and the planned reforms in the labour market, including youth employment schemes. In this context, Cypriot authorities approved in December 2014 a National Action Plan for Youth Employment, with an overall budget of € 47.2m. The action plan focuses on seven priorities, aiming to enhance youth employment and promote small and medium sized enterprises[49].

2.5 Funding trends

2.5.1 Funding flows

In Cyprus, there is a time lag of available statistics for R&D funding, hence information on R&D funding for 2013 is not yet available.

[46] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.13
[47] http://www.cna.org.cy/webnewsEN.asp?a=1f3e1ffd5f144308b8c4c25f46c84384, February 2015
[48] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.7
[49] http://www.cna.org.cy/webnewsEN.asp?a=1f3e1ffd5f144308b8c4c25f46c84384, February 2015

The severe fiscal restrictions resulted in an inevitable freezing of public funds originally earmarked for R&D. On the other hand, the enterprises are in a phase of striving for survival due to the difficult economic environment following the bail-in and the Economic Adjustment Programme restrictions, thus being able to devote only very limited resources to R&D50.

Government represents the largest source of funding, accounting for 66.4% of total GERD (2012 data). Funding from abroad comes second in order of importance, covering 17.5% of total GERD (2012 data). The business sector provided about 10% of total R&D funding, while HEIs and the private non-profit sector accounted for 4.6% and 0.7%, respectively of total funding (2012). Funding from the private non-profit sector was less than € 1m in 2012.

The government predominantly funds HEIs and RPOs. At the end of 2012, total funding to HEIs and RPOs was at € 45.2m (81.8% of total government funding).

Most of the funding coming from abroad goes to the HEIs, namely 61.6% (increasing over the years) of total foreign-financed GERD. The rest is allocated to business enterprises (12%), private non-profit organisations (16.6%) and public research organisations (9.8%).

The business sector funds almost exclusively intramural R&D activities namely, €8.4m out of a total €9m (93.3% of total). The same applies to funding from HEIs, which fund exclusively research performed within the institution.

The Cyprus Partnership Agreement (PA) (adopted in June 2014) provides that a total of €72.1 m will be allocated to the thematic objective "Strengthening research, technological development and innovation" in the period 2014-2020 from ERDF (€ 70 m) and European Agricultural Fund of Rural Development (EAFRD) (€ 2.1 m)[51]. About € 45 m out of these funds will be provided to the RPF and € 25 m to MECIT. These will be matched by 15% national funds. Together with national institutional funding the budget for the current programming period is expected to reach € 132 m.

ERDF funds are expected to stimulate private sector participation in R&D expenditure, promote the development of R&D collaboration and networks, increase the percentage of innovative SMEs and increase HERD through the upgrading of the local R&D infrastructure. EAFRD funds will promote collaborations/networks for the development of agricultural products, enable training and knowledge transfer in the sector, stimulate investments for the adoption of new technologies and applied research[52].

[50] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.12
[51] Cyprus Partnership Agreement 2014-2020, May 2014, pg.129
[52] Cyprus Partnership Agreement 2014-2020, May 2014 pg.98

Table 2: Basic indicators for R&D investments

	2009	2010	2011	2012	2013	EU28 (2013)
GDP growth rate	-1.9	1.3	0.4	-2.4	-5.4	0.1
GERD (% of GDP)	0.49	0.5	0.5	0.47p	0.48p	2.07 (2012)
GERD (euro per capita)	104.1	105.2	105.8	96.1p	99.4p	530.1 (2012)
GBAORD - Total R&D appropriations (€ million)	83.966	80.571	80.605	69.851	59.453	90 505.61 1
R&D funded by Business Enterprise Sector (% of GDP)	0.08	0.06	0.05	0.05	n/a	1.12% (2011)
R&D funded by Private non-profit (% of GDP)	0	0	0	0	n/a	0.03%(2011)
R&D funded from abroad (% of GDP)	0.06	0.07	0.06	0.08	n/a	0.19% (2011)
R&D funded by Framework Programmes(€ million)	62.7*			n/a		
R&D funded by Structural funds (€ million)	n/a	n/a	44.9**	31.3**	n/a	
R&D related FDI (€ million)	n/a	n/a	n/a	n/a	n/a	
R&D performed by HEIs (% of GERD)	46,1%	49,8%	53,5%	56,0%	57,3%	23.6.% (2012)
R&D performed by Government Sector (% of GERD)	20,4%	19,6%	16,6%	16,4%	14,4%	12.2% (2012)
R&D performed by Business Enterprise Sector (% of GERD)	19.8%	17.2%	14.4%	14.4%	15.4%	63.3% (2012)
Share of project vs. institutional public funding for R&D	n/a	n/a	n/a	n/a	40% ***	n/a
Employment in high- and medium-high-technology manufacturing sectors as share of total employment	0.7%	0.6%	0.7%	0.7%	1%	5.6% (2011)
Employment in knowledge-intensive service sectors as share of total employment	33.8%	35.4%	35.8%	36.1%	38.3%	38.9% (2011)
Turnover from Innovation as % of total turnover	n/a	14.7%	n/a	n/a	n/a	13.4% (EU-27, 2010)

* FP7 funding received 2007-2013, Think pieces 03/2014, pg.9

** Allocation of funding in RTDI and linked activities (priority area 1) of the Enterprise and Environment programme

*** This is a rough estimate calculated in cooperation with the RPF; there is no official figure available

p: provisional data

2.5.2 Project vs. institutional allocation of public funding

Although there are no official statistics for the allocation between institutional and project-based funding of R&D, it is estimated that about 40% of the funding is project based (2012 data)[53].

[53] Based on the published budget of R&D for 2012, 40% of the funding came from the State, 27% from HEIs, 15.5% from the private sector and 17.5% from abroad. Out of these funds, competitively were allocated 15%-20% of state funds, 2%-3% of private funds and 17.5% of foreign funds, in total about 40%. This is a

The Cyprus government plans institutional funding annually through the state budget. Block funding follows historic and size criteria and is not associated to performance indicators. It is directed to HEIs and RPOs.

HEIs have introduced mechanisms within the University (specialized offices) for the selection and management of research proposals and project selection is based on a review process by an internal HEI Committee. Based on a study on the degree of diversification of university budgets and the share of project funding, 86 % of the university budget of the University of Cyprus comes from block funding, 2 % comes from national project funding and 12 % comes from EU funds (all project funding) (data collected in the period May 2009-January 2010)[54].

The major sources for project-based funding of R&D activities are the programmes of the RPF and recently MECIT (for innovation). Grants are distributed through DESMI. Project funding addresses both basic and applied research in the context of DESMI. Additional project funding comes from the recently adopted MECIT programmes, mainly funding innovation but also partly from those funding entrepreneurship (although the majority of the latter does not go to innovation-oriented companies).

Peer review principles are implemented in some of the calls for project funding and are performed by national funders[55].

The ex-ante evaluation procedure for project selection is systematically and meticulously organised: Because of the small size of the national research community, evaluations are organised in Athens using Greek peers to avoid any conflicts of interest.

The government has announced a new call of Cyprus Entrepreneurship Fund (CYPEF) in November 2014. Total funding is €200 m, 50% of which will come from Cyprus government through EIB loan while the rest will be provided by local banks[56].

Furthermore, a Trade Finance Facility from EIB of €150 m was approved in October 2013 and it is expected to reactivate credit lines with international banks and support short term trade-related instruments. Through leverage, it will support annual export and import flows between €300-450 m, mainly by SMEs[57].

The implementation of Financial Engineering Instruments will continue in 2014; the Bank of Cyprus signed an agreement in December 2013 with the European Investment Fund for the continuation of the implementation of JEREMIE Cyprus, for the remaining €8 m. Additional schemes will be available in the course of 2014-2020 through ESIF, both in the form of grants and in the form of loans or guarantees.

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rough estimate undertaken for the purposes of this report. In the European Research Area, Progress Report 2014 the responses of 13 RPOs suggest that 100% of its funding is project based; however, this cannot be accurate since public sector R&D salaries and operational costs are block funded with no assessment mechanism. I consider the rough estimate more accurate (European Research Area, Progress Report 2014, pg. 104).

[54] JRC Scientific and Technical Reports, European university funding and financial autonomy, A study on the degree of diversification of university budget and the share of competitive funding, Laura de Dominicis, Susana Elena Pérez, Ana Fernández-Zubieta, 2011, pg. 30

[55] European Research Area, Progress Report 2014, pg. 23

[56] http://www.fundingprogrammesportal.gov.cy/easyconsole.cfm/page/prog/prog_id/2660, November 2014

[57] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 19

The schemes are expected to become available to SMEs at the end of 2014[58].

The public universities have an internal allocation mechanism for very small research funds to support their PhD students to present research results in conferences as well as small funding for faculty to engage in research projects (covering mainly research assistants and travelling). The institutional funds from the ministry are used for this purpose.

The current balance between project and institutional block funding follows a historic rationale. Project based funding has increased over the years and has contributed to raising the level of research output. As yet no competitive institutional funding is adopted. Change is in the right direction, for a country that adopted an R&I policy rather late. Improvements are, slow, in particular after the outbreak of the financial crisis, which (understandably) shifted policy interest away from the real economy towards public finance.

The new politically responsible agency will need to review this situation in cooperation with the Ministry of Education.

2.5.3 R&I funding

All DESMI measures addressed to the business sector (directly the development of research and innovation in companies but also multi-thematic research and human resources) are implicitly related to innovation as well.

Government funding is direct. There are tax incentives to boost intellectual property rights, introduced in 2012 and tax exemptions on R&D and innovation expenses introduced in 2002 and 2014, respectively[59].

Law 118(I)/2002 and Law 115(I) 2014 provided tax exemptions on R&D and innovation expenses. Law 115(I)/2014 introduced the definition of innovative companies as companies acknowledged by experts as capable of producing innovative/improved results or companies that allocate at least 10% of their operating expenses on R&D in the last 1-3 years before the year the exemption is claimed. Tax exemptions are also allowed on the purchase of shares of innovative companies[60].

The IPR amendments included accelerated amortisation (five years) for the acquisition or the development of an IPR, provided four-fifths deduction of revenue from exploitation of IPRs (maximum tax of 2.5% on income earned from IP assets based on the low tax rate of Cyprus), tax exemption of dividends resulting from IPR exploitation, four-fifths deduction of profits on disposal of IP rights. In addition, total tax exemption on IP rights may be achieved through the introduction of a Cyprus International Trust that could hold the shares and provide financing to the Cypriot IPR owner[61].

Public Private Partnerships (PPPs) could be explored in the context of the new EU Innovation Investment Package adopted in February 2014 by the European Commission.

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[58] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 19

[59] Law 118(I)/2002 (art.9) and Law 115(I)2014

[60] Law 115(I)2014

[61] http://www.mondaq.com/x/243428/Trademark/The+Cyprus+Intellectual+Property+Rights+x0027Box, November 2014

2.6 Smart Specialisation (RIS3)

A new National Innovation Strategy on Smart Specialisation (RIS3) for Cyprus was prepared by the DGEPCD, the RPF (as a Coordinator), in collaboration with a Cyprus University of Technology (CUT) research group[62]. RIS3 was peer reviewed in May 2014 in the context of S3 platform EU project, with the participation of 9 EU countries (excluding Cyprus) at national level and 6 EU countries at a regional level[63].

The study was endorsed, in November 2014,by a Governing Board composed of representatives of stakeholders (MECIT, the Ministry of Education and Culture, Ministry of Agriculture, Natural Resources and Environment, RPF, the University of Cyprus, CUT, The Open University of Cyprus, the Cyprus Scientific Council, the Rectors Committee, the Association of Research Organizations, the Cyprus Productive Centre, the Human Resource Development Authority, Cyprus Employers & Industrialists Federation, the Cyprus Chamber of Commerce and Industry, the Association of Cyprus Banks, the Cyprus Consumers Association and the Technical Chamber of Cyprus) and chaired by the Secretary General of DGEPCD and President of RPF[64].

RIS3 has the following primary objectives[65]:

- The enhancement of the competitiveness of priority sectors;
- The development of new and support of existing competitive infrastructures and centres of excellence;
- The inclusion of SMEs in RTDI-related activities and the attraction of private sector in RTDI investments;
- The promotion of centres of excellence in RTDI system for the benefit of the competitiveness of the economy and social advancement/progress;
- The development of a critical mass of researchers and increase of job opportunities of researchers;
- The establishment of synergies between RPOs, HEIs, the business community, policy makers and other stakeholders from the wider society; and
- The enhancement of extroversion of the Cyprus RTDI system.

The policy mix is structured upon 3 pillars; smart growth, sustainability of the R&I system and the support of R&I system[66].

The priorities for future areas of specialisation are Tourism (sustainable tourism, alternative forms of tourism, digital tourism applications, management and promotion of tourism product), Energy (renewable forms of energy, solar energy, Solar-thermal technology Solar Photovoltaic, Technologies for Solar Heating and Cooling, energy storage and transfer), Agriculture –Food Industry (agricultural and livestock production, agriculture, food security and climate change, Construction Industry / Built Environment (Sustainable Urban Development, Sustainable Construction, Existing Building Stock, Innovative and

[62] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg.7
[63] http://s3platform.jrc.ec.europa.eu/portoroz-may-2014, November 2014
[64] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg.6
[65] CYPRUS: Prioritisation, Entrepreneurial Discovery and Policy mix in the RIS3 process, Portoroz (SI), 15-16 May 2014 Leonidas Antoniou Antonis Theocharous Spyros Avdimiotis, pg. 6-7
[66] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 24

Intelligent Materials and Reuse of Building Materials, Cultural Heritage), Maritime/Transportation (Marine, Shipping, Intelligent Transport Systems, road freight) and Health (e-health, prognosis - prevention and treatment of diseases, health pharmaceutical industry), Environment (Climate Change, pollution, Eco Systems, Eco – Innovation, Water Resources), the ICT (ICT Application, Future Technologies), and Human Resources have been identified as horizontal priorities[67].

For each of the three pillars, RIS3 has identified specific measures. These measures have been addressed by explicit programmes and for each programme there is an indicative budget and a timetable for its implementation[68].

The RIS3 foresees monitoring and evaluation mechanisms based on result indicators, namely general ratios (number of beneficiary companies, employment increase, participation of new scientists etc.), research, technological development and innovation ratios (total R&D expenditure, number of patents, percentage of employees trained in new technologies etc.) and social ratios (poverty level, development of social entrepreneurship, percentage of crimes per 1000 inhabitants etc.)[69].

A Monitoring Committee, composed of DGEPCD, MECIT and RPF is expected to be designated to foresee the implementation of the study and take "interim" decisions with regard to its evolution[70].

2.7 Evaluations, consultations, foresight exercises

There have been no evaluations of R&I programmes or measures. The RPF launched an international tender in 2012 but no contract was signed, despite response from many international consortia[71]. The (then) Planning Bureau considered the idea of a thematic evaluation, which has not been launched as yet, because of internal restructuring. No foresight exercise has taken place.

The spring 2014 governance report of the NCRITD provided an overall assessment of RTDI system in Cyprus and proposed a new RDI strategy as described in section 2.2[72].

Consultations were launched for the design of new programmes both by the RPF and MECIT. Extensive consultations and a large field survey were organised for RIS3, where the analysis of social networks and the use of focus groups helped prioritise and focus on specific niches.

Monitoring of the Structural Funds indicates that in the period 2007-2013, ERDF funds helped Cyprus to create 1,846 jobs, 1,310 out of which in SMEs and 530 in the research sector and provided with direct investment over 250 SMEs[73].

There is no macroeconomic model to assess R&I impact on economic growth.

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[67] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 23
[68] Smart Specialisation Strategy for Cyprus, September 2014 pg. 357-377
[69] Smart Specialisation Strategy for Cyprus, September 2014 pg. 384-386
[70] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg.7
[71] Information from interview, see interviewee list Annex 1b
[72] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek)
[73] Cohesion Policy and Cyprus, June 2014

3. National progress towards realisation of ERA

3.1 ERA priority 2: Optimal transnational co-operation and competition

In the New Framework Programme, RPF announced the allocation of more than €9 m to calls for participation in Joint Programming Initiatives (JPI), ERA-NETs and Art.169/185 network projects. In the period 2015-2022, RPF plans to participate in 10 ERA-NET calls, 12 JPI calls and 6 Art. 169/185 network project calls[74].

Cyprus is currently involved in 9 active ERA-NET projects, 2 Art. 169/185 network projects (EUROSTARS) and 5 JPI[75]:

- Water Challenges for a Changing World;
- URBAN EUROPE: Global Challenges – Local Solutions;
- A Healthy Diet for a Healthy Life;
- Agriculture, Food Security and Climate Change; and
- Cultural Heritage and Global Change: A New Challenge for Europe.

There is no participation in Joint Technology Initiatives (JTI), most likely because of the limited interest from the side of the business sector.

The size of the research system in Cyprus and its peripheral geographical location are significant barriers to transnational cooperation. Joint research agendas are mainly adopted through EU incentives in the context of ERAnets, Joint Technology Initiatives (JTI) and Territorial Development Programmes of the Structural Funds. Bilateral agreements focus on joint priorities with the countries with which they are signed.

There are no common ex post evaluation procedures except those foreseen and implemented in the context of the European Commission.

It is estimated that 0.7% of national funding is dedicated to joint research agendas, way below the EU average (1.42%)[76] and there are no measures to address this problem. There is no R&D budget for collaboration programmes with third countries (EU average equal to 2.4%)[77]. Efforts for joint research with Egypt suffered from significant bureaucratic drawbacks and discouraged other initiatives.

[74] http://www.research.org.cy/_metacanvas/pinakas_anakoinwsis.pdf, November 2014
[75] NETWATCH Platform on transnational R&D programme collaboration
[76] European Research Area, Progress Report 2014, pg. 105
[77] European Research Area, Progress Report 2014, pg. 21

3.2 ERA priority 3: An open labour market for researchers. Facilitating mobility, supporting training and ensuring attractive careers

3.2.1 Introduction

The Cypriot labour market for researchers is regulated with no institutional autonomy. Based on the University Autonomous Tool (UAT)[78], Cyprus has medium-low organisational and staffing autonomy, medium-high academic autonomy and the lowest ranking in financial autonomy among the 29 higher education systems being examined by UAT. Cyprus ranks 27th out of 29 organisations in organisational and staffing autonomy, 7th in academic autonomy and 29th in financial autonomy. Regulations of internal academic structures are unusually strict in Cyprus, and neither faculties nor departments may be established within HEIs without government agreement[79].

Researchers accounted for between 0.42% and 0.45% of total active population in the period 2010-2012 (last available data) compared to a EU28 average of 1.05% (2011 data). In the same period, researchers accounted for 0.45%-0.5% of total employment, compared to a EU28 average of 1.28%[80]. The recent financial crisis resulted to a "freeze" of all hiring in the public sector, which became official by Law 21(I)/2013. According to this law, the prohibition will remain in force until the end of 2014[81].

Supply of skilled and medium-skilled labour increased more rapidly than demand in the decade 2000-2010 and it is expected to further increase more rapidly than demand in the current decade[82]. Unless there is a serious restructuring and increasing investments this is likely to nurture outmigration of skilled and semi—skilled labour.

Table 3: Labour market skills forecast-demand and supply (% change)

	Demand highly skilled (medium skilled)	Supply highly skilled (medium skilled)
2000-2010	62.9 (29.4)	68.2 (40.8)
2010-2020	27.9 (6.6)	31.3 (14.6)

Source: Innovation Union Competitiveness Report 2013

3.2.2 Open, transparent and merit-based recruitment of researchers

Researchers are civil servants and their recruitment and promotion is highly inflexible. The hiring and promotion of researchers in Public Universities in Cyprus is regulated by individual laws applicable to the University of Cyprus, Cyprus University of Technology, Open University and private universities:

[78] UAT was compiled at the end of 2010 using 38 indicators, categorised into four autonomy dimensions (organizational, financial, staffing, academic)- http://www.university-autonomy.eu/about/

[79] http://www.university-autonomy.eu/countries/cyprus/, November 2014

[80] Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex [rd_p_perslf]

[81] Law 21 (I) 2013

[82] Innovation Union Competitiveness Report 2013, pg. 64

- The law regulates the qualifications, which are necessary for the promotion of researchers to a higher rank, and the procedure for their appointment in the University of Cyprus[83]. The law stipulates that researchers are hired through open tendering procedures.
- Law 234 (I) 2002 for the establishment and operation of Open University of Cyprus specifies that researchers may be transferred from Universities abroad. Its amendment in 2010 introduced experience in open and distant learning as one of the prerequisites for their hiring.
- The qualifications, which are necessary for the promotion of researchers to a higher ranking, and the procedure for their appointment in the Cyprus University of Technology are also defined by Law[84].
- Law 109 (I) 2005 for the establishment and operation of private universities stipulates that the recruitment of researchers is regulated by the statutes of each university and should be in compliance with the procedures applied by the University of Cyprus.

Based on UAT, Cyprus received a total score of 50% un-weighted and 49% weighted terms in terms of organisational autonomy[85], with flexibility in the selection and dismissal of the executive head (100%) and the establishment of other legal entities (60%). In terms of staffing, Cyprus received an overall score of 48% un-weighted and 46% weighted, with flexibility in the recruitment procedures of senior academic and administrative staff (100%) and the dismissal of senior academic staff (60%)[86].

Recruitment of researchers in Cyprus is considered open and transparent, with all positions and selection criteria advertised in the Government Gazette, in local press, websites and in the Cyprus EURAXESS portal. Most positions are advertised in English. There are clear rules for the composition of selection panels, though the actual composition is rarely disclosed[87]. The criteria for assessment of postgraduate candidates are the academic background, letters of recommendation, personal interviews, written examinations and other special criteria set out by each department[88].

Cyprus had practically zero net added researchers (head count) in the period 2000-2010[89]. Due to the limited financial autonomy there is a large number of researchers coming from academic inbreeding[90]. Only a minority of local researchers (about 40%) believe that research posts are sufficiently advertised. About 60% believe that recruitment procedures are sufficiently transparent and 50% believe they are sufficiently on merit[91].

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[83] The unofficial codification of laws for University of Cyprus in the period 1989 – 2007.
[84] The unofficial codification of laws for the Cyprus University of Technology in the period 2003 – 2011.
[85] Weighted by the importance of each indicator included in each of the four dimensions.
[86] http://www.university-autonomy.eu/countries/cyprus/, December 2014
[87] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 7
[88] European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' carried out by: Lena Tsipouri, September 2013, pg. 19
[89] IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group, pg. 21
[90] IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group, pg. 23
[91] IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group, pg. 24

More than 50% of Cypriot researchers associated to European universities were 'satisfied' with the extent to which research job vacancies are publicly advertised and made known by their institutions in Cyprus[92].
After their selection following the open tender, lower grade academics, including lecturers and assistant professors, undergo individual peer evaluations every three to four years and they may be dismissed, if they receive a negative evaluation twice in a row. Senior administrative staff in permanent positions is evaluated and can only be dismissed during the first two years of its contract. Higher categories of academic staff, such as full and associate professors cannot be dismissed at all[93].

Accreditation is regulated by Law 68 (I) 96 and performed by an independent body, supervised by the Ministry of Education, the Council of Recognition of Higher Qualifications (KYSATS). There are two types of accreditation, namely equivalence (if the duration of studies, the conditions of admission, evaluation, promotion and graduation of students and the teaching and learning procedures meet the requirements of the University of Cyprus or the other State Higher and Tertiary Education Institutions of Cyprus) and equivalence and correspondence (if, in addition to equivalence, the specific programme of studies includes at least two thirds of the required subjects including the compulsory subjects of the corresponding programme of the institution which is used as the basis for evaluation)[94]. Accreditation is not an access barrier since similar practices apply at a European level.

There is a trend of outflow of researchers which was amplified by the crisis but there are no official data[95]. Based on the findings of a study on the condition and mobility of researchers, in 8 Member States including Cyprus (Austria, Bulgaria, Czech Republic, Cyprus, Greece, Hungary, Slovakia and Switzerland), the main motive for international mobility of researchers in Cyprus was future career development (71% of respondents), reputation of the host organisation (67% of respondents) and interesting research theme (67% of respondents). The main discouraging factor was family and other personal connections (70% of the respondents), while age limitations and adaptation problems were also mentioned[96].

Cyprus had a relative high number of researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years (44.1%) compared to the EU average (31.1%). HEIs encourage academic staff to take 'sabbatical leaves' for the purpose of expanding their research interests/aspirations, but such provision is not provided for non-academic research staff[97].

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[92] [92] European Research Area, Progress Report 2014, pg. 5

[93] ERA Communication Fiche Cyprus 2013

[94] http://www.highereducation.ac.cy/en/kysats.html, November 2014

[95] MORE has no data for Cyprus due to the low response rate in the corresponding survey- European Commission DG Directorate C-European Research Area Universities and Researchers, Study on mobility patterns and career paths of EU researchers, Part I Mobility Survey of the higher educational sector, June 2010, pg. 41

[96] Ivancheva L., Gourova E. 2001. Challenges for career and mobility of researchers in Europe, Oxford Journal Social Sciences, Science and Public Policy, Vol. 38, Issue 3, pg. 185-198
The survey was conducted through questionnaires to researchers (PhD students, Post Docs, experienced researchers, university lecturers, etc.) and other stakeholders (representatives of industry, research organizations, NGOs, public bodies, etc.). The sample size was fixed at 100 researchers and 30 stakeholders, with the exception of Cyprus where the sample was much smaller.

[97] 2012 data, Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 4

Promotion from within prevents inward mobility[98]. Language is also a problem. The need to obtain residence and work permits poses additional constraints to HEIs[99].The Proselkysi Programme (ran in 2009-2010) enabled Cypriot researchers as well as researchers from another EU and third countries to participate in international research networks[100].

Based on a MORE II study, permanent contracts are the only possibility for leading researchers (category R4)[101]. First grade researchers up to the PhD level have fixed term contracts (less than one year), second grade researchers at PhD level but not completely independent have fixed term contracts of 2-4 years and established researchers have fixed term contracts in excess of 4 years[102].

The financial crisis has created instability in the labour market in general and the freezing of new hires will affect primarily young researchers.

Young researchers are able to access career development opportunities through initiatives of RPF, the Human Resource Development Authority of Cyprus (HRFDA) and the Youth Board of Cyprus. DIDACTOR (2009-2010) aimed at integrating post-doctoral scientists (under the age of 40) in the RTDI system of Cyprus, PENEK (2009-2010) targeted young doctoral candidates, promoting their involvement in research units laboratories/exercises[103]. More recent initiatives include:

- Job placement and training of unemployed tertiary education graduates promoted by HRFDA for the training of newly employed researchers[104];

- A workshop organized at the end of October 2014 by RPF for the training of young researchers (undergraduate, doctorate students and post doctorate researchers with 2-3 years from their doctorate award) in the preparation of funding proposals from Horizon 2020[105];

- A series of conferences for young researchers and doctorate students to present their research projects announced by the Youth Board of Cyprus in October 2014. The public and private HEIs of Cyprus, FameLab and the Newspaper City Free Press will sponsor the conferences[106];

- A new DIDAKTOR programme; 3 calls are expected until 2018 with a total budget of € 9.4m[107];

- Young Researchers second chance programme will be launched in 2015 for the support of young post doctorate researchers, with a total budget of € 4m. One call is expected which will be open for 3 years[108];

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[98] IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group, pg. 27

[99] IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group, pg. 40

[100] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 12

[101] MOREII study defines category R4 as leading researchers-researchers leading in their research or field (pg. 16 of the study) which is probably the same as established researchers but we use the terminology of the study

[102] MORE2 Remuneration Cross country Report, April 2013, pg. 49

[103] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 8

[104] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 9

[105] http://www.research.org.cy/_metacanvas/anakoinwsi_ergastiriou_arxarioi_erevnites_31_10_2014.pdf, November 2014

[106] http://www.research.org.cy/EL/news/3748.html, November 2014

[107] Smart Specialisation Strategy Cyprus, September 2014, pg. 361

The National Action Plan for Youth Employment is also expected to enhance cooperation between HEIs and the business sector[109].

3.2.3 Access to and portability of grants

In Cyprus portability of national grants to other EU countries is not allowed[110]. RPF Programmes are open to research organisations and to individual researchers from abroad[111].

3.2.4 EURAXESS

EURAXESS Cyprus portal is managed by RPF and provides practical information both for incoming and outgoing researchers regarding entry conditions, transfer of social security, pension contributions, accommodation and administrative assistance . At a local level, RPF and EURES Cyprus[112] also provide useful information.

In 2013, 65.5 of researcher posts per thousand researchers in the public sector were advertised through the EURAXESS Jobs portal, compared to a EU27 average of 43.76[113].

Based on statistics for the use of EURAXESS Cyprus in the period 2008-2014 , most popular questions related to research funding opportunities (227 questions) and entry conditions/visa (27 questions).

3.2.5 Doctoral training

HEIs/departments have full autonomy in designing doctoral training curricula and deciding on the requirements for awarding PhDs. There is no explicit policy regarding the Principles for Innovative Doctoral Training (IDT) either at the national level or at the institutional level[114]. Funding and the lack of employment opportunities are acknowledged as major barriers for the implementation of IDT[115]. However, similar principles (excellence and international cooperation) are adopted internally and independently of the IDT. Departments try to ensure the funding means for PhD students to attend international conferences.

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[108] Smart Specialisation Strategy Cyprus, September 2014, pg. 362

[109] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014

[110] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 12

[111] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 12

[112] Portal of the Ministry of Labour and Social Insurance, providing information on social security legislation, November 2014

[113] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 8

[114] European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' carried out by: Lena Tsipouri, September 2013, pg.10

[115] European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' carried out by: Lena Tsipouri, September 2013, pg.14

The financial crisis in Cyprus has led to limited funding of doctoral training and almost no funding of post-doctoral research[116]. Information on the proportion of doctoral candidates receiving funding (fellowship, stipend, grant, employment contract, or equivalent providing funding for at least 3 years) is not available[117].

3.2.6 HR strategy for researchers incorporating the Charter and Code

The RPF made an active campaign in favour of the Charter and Code and all universities and research institutes in Cyprus have endorsed it[118]. The University of Cyprus and Cyprus Institute of Neurology and Genetics were acknowledged for their progress in HR Strategy for Researchers and were awarded HR Excellence in Research logo in 2010. Two more HEIs (Open University and European University are in the pipeline).

DGEPCD organises information activities for HRS4R[119]. The RPF is also informing about the HRS4R in all events promoting FPs (in the past) and Horizon 2020. Its strategy is composed of informing the institutions but also sensitising individual faculty members about the merits of HRS4R hoping to generate bottom up pressure. The application of the Charter and Code has not been formally evaluated but the implementation is monitored and considered satisfactory at country level.

Although the market conditions were good in higher education, demand is now minimal leading to substantial brain-drain mainly towards other EU countries and in particular the UK and Greece. Promotion from within prevents mobility. High salaries (one of the highest salaries of researchers in EU26 with about € 40,000 net annual average salary for researchers in terms of PPS in 2006)[120] and a favourable tax environment used to be major incentives for domestic and foreign researchers but have now lost their appeal amidst the financial crisis. Law 168 (I)/2012, as amended by Law 31(I) 2013 introduced decreases in the salaries of public sector employees that range from 0.8%-14.5%, depending on the salary level. Salary reductions have affected academic personnel and in particular the number of PhD students. Social benefits are in place such as full payment of sick leave for 42 calendar days for each year of continuous research work[121]. The main obstacles are the limited size of the research potential and infrastructure and low salary levels. While the Greek language is a barrier for undergraduate teaching English is generally used for graduate studies and research.

3.2.7 Education and training systems

There are no specific policies in place or incentives to ensure a sufficient supply of postgraduates in the fields of science, technology, engineering and mathematics and an appropriate mix of skills among the population (including through strong vocational and education and training systems) in the medium-to-longer term.

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[116] European Commission DG RTD, Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe, Final Report, pg. 24
[117] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 9
[118] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 10
[119] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 10
[120] European Commission DG HR Remuneration of Researchers in the Public and Private sectors, April 2007, pg. 46
[121] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 11

The creation of the Cyprus University of Technology was the main instrument to address this need. There were 608 active postgraduate students (MSc and PhD) in the academic year 2013-2014 as opposed to 454 in the academic year 2012-2013[122]. It will of course take years until the gap is closed. Private universities are also offering studies in ICT.

Education and training curricula have not yet adopted the Learning Outcomes philosophy. However, individual departments offer courses promoting entrepreneurship, critical thinking and communication skills.

The "Development of Research and Innovative Culture" Programme (2009-2010) of RPF was addressed to pupils and students of all education levels, promoting the development of innovative ideas and offering rewards to experienced researchers with remarkable research work of international level. The programme included 4 competitions "Nicos Symeonides"- Research Award, "Students in Research-FOITO" competition, "Pupils in Research-MERA" competition, "Technology and Innovation in Education-TEKE" competition[123]. Similar activities are likely to be launched in the current programming period, once the set of measures is decided.

Excellence in education will be addressed through the programme Islands of Excellence (Nisides Aristeias) that will be managed by RPF and ran in the period 2015-2017 with a budget of € 17 m. It is estimated that about 75 projects will be funded through this programme. It will follow a bottom up approach in Life Sciences, Natural Sciences and Engineering and Humanities and Social Sciences[124].

3.3 ERA priority 5: Optimal circulation and access to scientific knowledge

3.3.1 e-Infrastructures and researchers electronic identity

In 2012, a Digital Strategy was adopted, aiming to provide a comprehensive plan for the period 2012-2020 and introduce a holistic approach for the development of information society in Cyprus. The Strategy focuses on six strategic objectives, (i) Connect Cyprus, (ii) Modernise public administration and provide public electronic services, (iii) Inclusion of all into digital Cyprus, (iv) Education and learning, (v) Digital entrepreneurship, (vi) ICT for the environment.

An academic consortium composed of the libraries of the three public universities is created with the aim of facilitating optimal circulation and open access. Progress is made but infrastructure is lacking[125].

In November 2014, there were 3 open access repositories in Cyprus, all in HEIs (Cyprus University of Technology, Open University of Cyprus, Cyprus University,); 2 of the repositories provide access to digital collections and 1 repository provides access to research data of the HEI (Cyprus University of Technology)[126].

[122] http://www.cut.ac.cy/studies/postgraduate/statistics/, February 2015
[123] http://www.research.org.cy/EN/national_programmes/nfprtd200920010/ii/developmentofresearchandinnovativeculture/index.html, December 2014
[124] Smart Specialisation Strategy Cyprus, September 2014 pg. 358
[125] Information from interview, see interviewee list Annex 1b
[126] http://www.opendoar.org/find.php?cID=57&title=Cyprus, December 2014

In a survey conducted by Science-Metrix using DOAJ, PubMed Central, and Scopus regarding papers published on open access in the period 2008-2011 among EU-28 countries, Cyprus ranked low with 38 papers, (43% of total published papers), surpassing only Latvia, Luxembourg and Malta.

Cyprus scored average (4.59) in Network Readiness Index published by WEF. The index ranks in a 1-7 scale, 144 countries according to four criteria: (1) the environment (political and regulatory, business and innovation), (2) readiness, i.e. infrastructure, affordability, and skills, (3) the usage of individuals, business and government and (4) the social and economic impact[127].

Cyprus is neither a member of an identity federation nor of eduGAIN service, which is intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3plus) Partners' federations[128]. About 10% of RPOs provide federated identities of their researchers[129].

There is no national strategy to address personal data security. As the research community is very small, initiatives are left to individual universities.

3.3.2 Open Access to publications and data

There is no national policy on open access[130]. The library of the University of Cyprus (UCY) has been designated as the Cyprus OpenAIRE National Open Access Desk[131]. The libraries consortium mentioned in section 3.3.1 is promoting and supporting open access.

Open access initiatives are undertaken by HEIs and other research organisations:

- INTRA was initiated by the Library of UCY to aggregate and record all scientific publications by the academic staff of UCY[132];
- The Cyprus Academic Library Consortium (CALC) signed a nationwide subscription contract with BMC (Biomed Central) for an open access model of BMC journals[133];
- In October 2013, the Library of the Cyprus University of Technology and the pharmaceutical company REMEDICA launched the «Cyprus University of Technology Open Access Author Fund». The Fund will provide total funding of €14,000 per year and €3,000 per researcher for the funding of academic publications which will be in compliance with OASPA Code of Conduct and published in Open Access journals. Books must be published in the Directory of Open Access Books[134].

In the context of the preparation of the new Programming Period, open access emerged as a primary concern for stakeholders during consultations. As a consequence it is foreseen

[127] Europe 2020 Themes: Digital Agenda: Broadband and E-communications, pg. 9
[128] European Research Area, Progress Report 2014, pg. 54
[129] European Research Area, Progress Report 2014, pg. 55
[130] European Research Area, Progress Report 2014, pg. 45
[131] https://www.openaire.eu/newsletter-items/recent-developments-of-open-access-in-cyprus, December 2014
[132] http://dl114.madgik.di.uoa.gr/openaire/index.php?option=com_content&view=article&id=89&Itemid=211, November 2014
[133] http://dl114.madgik.di.uoa.gr/openaire/index.php?option=com_content&view=article&id=89&Itemid=211, December 2014
[134] http://library.cut.ac.cy/el/openaccess_fund,December 2014

that in the future any research organisations receiving public funding for infrastructure will need to adopt open access policies. This may be regulated at national level.
Green open access is the main modality of public policy in Cyprus[135]. Based on the ERA survey 73.7% of RPOs declared that they do not support open access to publications and open access data, while the remaining 26.3% considered that this question is not applicable for them (2013)[136]. The Cyprus University of Technology (CUT) is the only institution that has introduced the Immediate Deposit/Optional Access mandate, also called the "Liege Model"[137]. Faculty members of the CUT are expected to deposit their publications in the institutional repository KTISIS, and additionally to submit a copy of their publications or books to the Library[138].

The majority of open access papers in Cyprus in the period 2008-2013 were other type (223 papers 67.8% of total OA papers and 53.3% of total accessed papers), based on a sample of accessed papers (584). Green journals came second, accounting for almost 22% of OA papers and 12.3% of total accessed papers. OA papers were 53.3% of total[139]. For the future calls it is envisaged that support schemes will accept open access fees as eligible costs, leaving the decision on gold or green to the individual researchers. Discussions with the National Documentation Centre of Greece are under way to adopt a strategic decision for the future.

In a survey conducted by Science-Metrix using DOAJ, PubMed Central, and Scopus regarding papers published on open access in the period 2008-2011 among EU 27 countries, Cyprus ranked low with only 1,000 records contained in institutional repositories[140]. At the end of 2014, 13,279 documents were listed in the 3 institutional repositories (Table 4).

Table 4: Documents included in the 4 institutional repositories

Repository name	Num. Recs.	Pubs	Confs	Theses	Unpub	Other
Ktisis	3324					
KYPSELI	1643		+	+		+
LEKYTHOS	8,312		+		+	+
TOTAL	13279					

Source: http://www.opendoar.org/find.php

[135] European Research Area, Progress Report 2014, pg. 43
[136] European Research Area, Progress Report 2014, pg. 110
[137] http://roarmap.eprints.org/, December 2014
[138] http://roarmap.eprints.org/1129/, December 2014
[139] Proportion of Open Access Peer-Reviewed Papers published in Peer-Reviewed Journals at the European and World Levels 1996-2013, October 2014, Science Metrix, pg. 26
[140] Caruso J., Archambault A. and E., Open Access Strategies in the European Research Area, August 2013. produced for the European Commission DG Research & Innovation

4. Innovation Union

4.1 Framework conditions

There are no specific legal or regulatory actions creating the appropriate framework conditions for business R&D with the exception of the legal acts establishing financial incentives (see below). This is expected to change, as innovation is the centrepiece of the R&I strategy in the current programming period 2014 -2020 and the PA prioritises the creation of an innovation-friendly business environment[141].

Financial incentives exist mainly for R&D. The only scheme addressing exclusively innovation is the innovation scheme promoted by the MECIT, called "Enhancement of Business Innovation in Cyprus" with a total budget of €4 m, co-funded by ERDF and the Cypriot Government. Schemes planned for the current programming period include Innovation Houses, BIC, Innovation packages, as analysed under Policy initiatives of section 2.2.

Supply-side measures have traditionally been the only ones applied by the RPF and MECIT. Demand side policies have not been used with the exception of supporting energy saving projects in public buildings and did not trigger any innovation in the energy market.

4.2 Science-based entrepreneurship

Until 2014, there were no explicit support schemes facilitating the creation of university spin-offs and attracting (venture) capital and business angels. There is also a lack of a legal framework142. Incubators launched in the previous decade are not funded and they have been a pending issue for policy in the last five years.

The absence of a science-based entrepreneurship was acknowledged in the spring 2014 governance report of the NCRITD and it was proposed that a single National Knowledge Transfer Office (NKTO) is established[143].

The planned Science and Technology Park (STP)in Limassol, as described in section 2.2, has not been implemented for a decade and in 2014 the government strategy shifted towards the search of a strategic private investor(s) to co-fund the project[144].

Funding schemes targeted at young innovative companies are described in detail under Policy Initiatives (section. 2.2 above) and are summarised as follows:

- The grant scheme for innovative products and services[145];
- Innovation Packages;
- Innovation Houses that expected to be established in 2015[146].

[141] Cyprus Partnership Agreement 2014-2020, May 2014, pg. 62
[142] EVCA Tax Benchmark Study 2012, June 2013
[143] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 262-283
[144] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 13
[145] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 12

4.3 Knowledge markets

Cyprus introduced in May 2012 a set of tax incentives to enhance the registration of intellectual property rights, namely the Intellectual Property Rights Box (IP Box). The new set of rules amended prior legislation (1998 Patent Law, 1976 Intellectual Property Rights Law, Trademarks Law Cap. 268) and applied retrospectively from the beginning of 2012.

The amendments included accelerated amortisation (five years) for the acquisition or the development of an IPR, four-fifths deduction of revenue from exploitation of IPRs (maximum tax of 2.5% on income earned from IP assets based on the low tax rate of Cyprus), tax exemption of dividends resulting from IP exploitation, four-fifths deduction of profits on selling IP rights. In addition, total tax exemption on IP rights may be achieved through the introduction of a Cyprus International Trust that could hold the shares and provide financing to the Cypriot IP owner[147].

The introduction of a new Code of Practice for a uniform approach in the management of IPR lies among the research priorities of the new R&I strategy in the current programming period[148]. The protection of IPR will be entrusted with the NKTO[149], if and when it will be created.

Based on the results of a public consultation some years ago, RPOs did not have internal IPR policies; it is for this purpose that a tender for a specialised advisor was launched by RPF. Following the assignment of the project, all public RPOs and some private formed their own IPR policies and some of them have already approved them too.

The number of patents in the country is low, though rising; there were 4 patent applications in 2014, the same as in 2013. Given the size of the IPR market and the quasi monopoly of the RPF in the matter there is no specific coordination mechanism.

4.4 Knowledge transfer and open innovation

Cyprus does not have a specific strategy for knowledge transfer. All funders support occasionally the implementation of knowledge transfer as part of their project based funding for research commercialisation. However, in the last report of NCRITD, technology transfer is a priority area.

Cooperation between academia and enterprises is achieved through the implementation of the project 'Development and operation of Industry Liaison Offices (ILO) in Universities operating in the Republic of Cyprus' since 2009[150].

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[146] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 13

[147] http://www.mondaq.com/x/243428/Trademark/The+Cyprus+Intellectual+Property+Rights+x0027Box, November 2014

[148] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 17

[149] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 305

[150] COMMISSION STAFF WORKING DOCUMENT, Country Fiches accompanying the document Communication from the Commission to the Council and the European Parliament, European Research Area Progress Report

The project is expected to last until 2014 and has a total budget of about € 3.5 m. Six ILOs currently operate (University of Cyprus, Cyprus University of Technology, Open University of Cyprus, European University, Frederick University, University of Nicosia) in Cyprus and have managed to place 937 students in businesses (target was 400). In addition, four successful workshops have been organised, more than 600 academic profiles from all universities have been completed and more than 446 enterprise profiles and 175 research labs profiles have been collected[151].

Similarly, the Business Support Centre (member of EEN) has been established, aiming to provide intermediary services for the transfer of knowledge and technology. The efforts of the Centre are coordinated by the RPF and Cyprus Chamber of Commerce and Industry and TALOS Development Organisation are the other two founding partners[152].

Within the ERA compliant cluster[153], the share of research personnel whose primary occupation is in the private sector (headcount) is equal to 3.4%[154]. 4.9% of research personnel has primary occupation is in the private sector [155].

There are no framework conditions to incentivise and reward academics engaged in cooperation with industry/users.

The results of open innovation and knowledge transfer policies cannot be easily assessed since there are no available statistics on invention disclosures. In 2013, there were 33 patent applications originating from Cyprus. The main field of technology patent applications filed in the period 2009-2013 was Pharmaceuticals[156].

Based on a study conducted by RPF through the use of Espacenet, Cypriot HEIs, RPOs and companies registered a limited number of Intellectual Property Rights (IPRs) in the period 2002-2012 and most of IPRs were registered by foreign companies[157].

Supporting Technology Transfer was identified as a major weakness of the R&D system in the spring 2014 governance report of the NCRITD, hence a scheme for the establishment of a National Knowledge Transfer Office (NKTO) was proposed within the Organisation of Research and Technology Transfer (ORTF). The role of the NKTO will include the provision of information for the commercialisation of R&D and the protection of Intellectual Property (IP) rights, the strengthening of collaboration between the research community (RPOs, HEIs) and the industry, the support of patent agreements and the creation of start-ups and

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2014, pg. 98

[151] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 13

[152] http://www.cyprusprofile.com/en/companies/overview/business-support-center-of-cyprus-enterprise-europe-network, December 2014

[153] A total of 13 research performing organisations in Cyprus answered the 2014 ERA survey, which represents 75.8% of the total number of researchers in the country (total number of researchers in the country as of 2011) – 18.2%% of them are in the 'ERA compliant' cluster, COMMISSION STAFF WORKING DOCUMENT, Country Fiches accompanying the document Communication from the Commission to the Council and the European Parliament, European Research Area Progress Report 2014, pg. 99-100

[154] 45.5% of the respondents qualify in the limited to ERA compliance cluster

[155] COMMISSION STAFF WORKING DOCUMENT, Snapshots Member States of the European Union Accompanying the document COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT European Research Area Progress Report 2014

[156] PCT Yearly Review: The International Patent System data 2014

[157] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 89

spin offs, the provision of small scale funding (seed capital) or facilitation of financing through Business Angels, Venture Capital, credit institutions. A central NKTO is preferred to individual KTOs within HEIs due to the rather small size of the Cypriot R&D market.

Moreover, a central KTO will facilitate collaborations also with other parties (i.e. private R&D organisations, industry), will ensure a critical mass, promote ideas for the commercialisation of R&D results, will promote synergies and will demand lower start-up costs[158]. RIS3 foresees the allocation of €1.5 m for the establishment of a KTO which will be linked to the existing ILOs of HEIs.

4.5 Innovation framework for SMEs

There are no special rules in existing insolvency regulations for the support of the financial reorganisation of enterprises, and bankruptcy procedures have not yet been simplified[159]. Cyprus monitors all developments for the enhancement of the Small Business Act for Europe through the nominated SME envoy, the Director of Industrial Development Service of MECIT. There are no compulsory discharge proceedings and the Court discharges enterprises, only if they pay all their debts or at least 50% of them and provided the creditors agree. The discharge takes place in four years (if there is no objection or further offence) otherwise the time is extended to 14 years. Second chance is easier for individual entrepreneurs than for companies. Based on legal amendments in 2008-2009 a bankrupt entrepreneur can request his discharge and may become director again (second chance) after four years. His debts are not annulled. Based on a more recent provision (Solvency Law chapter 5 art. 31a), five years after the decision of transfer to the official recipient the entrepreneur can request annulment of the bankruptcy court decision[160].

A call is planned by MECIT for the creation of clusters between competing or complementary businesses, through strategic partnerships (see above in 2.3 under Policy Initiatives). Although the call is not explicitly addressed to SMEs, it is expected that SMEs will benefit, taking into account the structure of the Cypriot corporate market (dominated by micro and small enterprises). The total budget of the programme will be € 3 m and is expected to last 2-3 years.

Innovation Houses planned for 2015 (described above under 2.3) are expected to create 40 new SMEs[161].

Regarding innovation vouchers, 3 calls were launched in the period 2008-2011 for an amount of €5,000 per voucher. In the last call (2011), 24 applications were filed and 14 came through. The vouchers were principally received by CUT and Productivity Centre.

A new voucher scheme is expected in 2015 for a total budget of € 260,000 (50 coupons)[162].

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[158] Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek), pg. 304

[159] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS , Review of the "Small Business Act" for Europe, 2011, pg. 5

[160] Bankruptcy and second chance for honest bankrupt entrepreneurs, Cyprus (Tsipouri L., 2014)

[161] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 13

The innovative grant scheme for products and services described under 2.3 above is supporting existing SMEs and is expected to help establish 30 new SMEs in 2014 and 2015[163]. This measure is a first-time experience and the MECIT unit dealing with it is trying to exploit the current experience and minimise bureaucracy in the forthcoming calls.

Other innovation financing tools for SMEs include the programme "Enhancement of Business Innovation in Cyprus", launched by MECIT with a total budget of €4 m, co-funded by ERDF and Cypriot Government. The programme aims to provide R&D funding to SMEs for the development of market oriented competitive innovative products and services. 84 applications were submitted for participation in the programme and 41 proposals were approved (16 in the area of ICT, 8 in manufacturing area, 5 in the area of medical equipment and pharmaceuticals, 4 in education area, 2 in energy, 2 in the area of electronics and 1 proposal in each of the areas of building installations, nanotechnology, aeronautical and agricultural production and livestock) for a total budget of € 6m, €3.9 m out of which will come from public funds[164]. These schemes are neither evaluated nor benchmarked regularly.

MECIT is experimenting with new schemes for partnerships between MS agencies and the EU, and in this context visits for gaining access to good practices are planned, but there are no formal partnerships as of December 2014.

4.6 Venture capital markets

There is no VC market and the numbers for Angel investments are minimal and hence not leading to any trends and conclusions. The angel market in Cyprus is the smallest in the EU with less than a million of investments in 2013 (€ 600k) and practically no activity in 2012. One investment only absorbed € 310,000, making Cyprus the country with the highest average investment in EU. However, the average investment size per business angel remains low at about €16,000[165]. There are no fiscal incentives for VCs[166].

Crowdfunding is minimal and there are no systematic statistics on that. A crowdfunding platform for charity causes in Cyprus has been established with funds from USAID and UNDP Act[167]. Future Bridge Cyprus is another social venture for raising of GBP 10m for the support of innovation[168].

4.7 Innovative public procurement

The government had planned a public procurement for innovation scheme in 2012, but it was abandoned following the public budget reductions triggered by the financial crisis[169].

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[162] Smart Specialisation Strategy Cyprus, September 2014, pg. 363

[163] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg.. 12

[164] ERAWATCH Country Report 2013, Cyprus

[165] The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players, Statistics Compendium 2014

[166] EVCA Tax Benchmark Study 2012, June 2013

[167] http://www.wehug.org/, February 2015, December 2014

[168] https://cyeuroblog.wordpress.com/2013/08/22/transforming-entrepreneurship-in-cyprus/, February 2015

[169] Information from interview, see interviewee list Annex 1b

Cyprus ranked second in the Public Sector Innovation Scoreboard in the list of countries with the largest public procurement of innovations following Denmark (48% of companies), Cyprus (45%) based on the Innobarometer survey[170].

It is calculated as the share of companies that answer with 'Yes' to the question whether their public procurement activities have included the possibility to sell one of their innovations to the government (i.e. new or significantly improved products or services). However, this does not reflect a deliberate policy but rather capacity building and there is no indication of use of related existing technologies from the side of the companies
The improvement of public services is pursued through the launch of the e-PS platform[171] but there is no evidence that it was used for innovative public procurement. However, the result is astonishing as there has never been an explicit PPI or PCP policy.

[170] European Public Sector Innovation Scoreboard 2013 A pilot exercise, pg. 48
[171] Cyprus National Reform Programme 2012, pg. 78

5. Performance of the National Research and Innovation System

5.1 Performance of the National Research and Innovation system

Input indicators are very low, both because of the size of the country and its late entrance in RTDI, namely

- R&D expenditure in the public sector remains low at 0.34% of GDP. However, public funding of innovation activities is amongst the highest in EU only surpassed by France (46.2%) (2010 latest available data). Based on the Community Innovation Survey for Cyprus, 41.97% of companies received public funding for innovation activities from any public authority, 37.8% out of which came from the central government (including central government agencies or ministries). R&D expenditure in the business sector accounts for 0.06% of GDP and VC investments are at a minimum although there is a lack of data;
- Researchers accounted for about 0.42%-0.45% of total active population in the period 2010, 2012 (last available data) compared to a EU28 average of 1.05% (2011 data). In the same period, researchers accounted for 0.45%-0.5% of total employment, compared to a EU28 average of 1.28%;
- New doctorate graduates in Cyprus remained low at 0.3 people per 1,000 population in 2011, almost the same as in 2010 (tertiary education graduates) and represented the lowest number in Europe along with Malta (1.7 is the EU-28 average);
- Cyprus benefits from a high percentage of population aged 25-64 years old with tertiary education (39.3% compared to an EU-28 average of 28.5% at the end of 2013).

Output indicators from the IUS suggest:

- 34.8% of SMEs introduced product or process innovations (2010 latest available data), compared to a EU average of 38.4%;
- 37% of SMEs introduced market or organizational innovations (2010 latest available data), compared to EU average of 40.3%;
- Only 12.8% of employment is in fast growing firms of innovative sectors (2011 latest available data), compared to EU average of 16.2%;
- 16.9% of total employment is in knowledge-intensive activities (manufacturing and services) (2012 latest available data), compared to a EU average of 13.9%;

From different sources one can conclude that:

- Publications have grown with an annual rate of nearly 10%. Total scientific documents in Cyprus reached 1,820 in 2013, compared to 1,688 in 2012 (7.8%

growth) and 1,508 in 2011[172]. For comparison in Malta total scientific documents were 432 in 2012 and 479 in 2013 (11% growth).

- International Scientific co-publications per million population reached 1,066 in 2012 (according to IUS database 2014). For comparison purposes one can refer to Malta with 400 co-publications in 2012.
- The main fields of publications are in Medicine (349), Engineering (315), Physics and Astronomy (248) and Social Sciences (234), which accounted for almost 63% of all published documents[173].
- In spite of the growth, Cyprus ranks low in Western Europe, in terms of total citations per document (0.54) only above Luxembourg and Malta[174]. At the end of 2013, Cyprus recorded 0.54 citations per document, compared to 3.65 citations per document in 2012[175]. Total citations per document in the period 1996-2013 were at 8.49[176].
- Total Public-private co-publications in Cyprus per million population were 26.6 in 2011 (latest available data), compared to a EU27 average of 52.8.[177]
- Patenting under the PCT is very low; 0.30 patent applications per billion GDP (in PPS) were filed under the PCT in Cyprus in 2010, 0.13 out of which were in societal challenges[178]. At the end of 2012, there were 52 patent applications by residents, 8 by non-residents and 395 applications from abroad. In the period 1998-2012, patents concentrated in other consumer goods (8.2% of total) and medical pharmaceuticals (6.5% of total). The country is strong in trademarks, with about 14,000 trademarks being filed from residents, non-residents and from abroad in 2012 (about 250% of the EU average)[179];
- In Cyprus, 445 patent applications were made at the EPO in the period 2004-2013[180], and approximately 630 patents were filed at the EPO in the same period.[181].

In terms of innovation output, as measured by the new index proposed by DG RTD measuring patent performance (IUS 2.3.1), employment in knowledge-intensive activities (IUS 3.2.1), exports of knowledge-intensive services (IUS 3.2.2), contribution of medium-high and high-tech manufacturing to the trade balance (IUS 3.2.3) and a newly developed indicator on fast-growing firms in innovative sectors, Cyprus ranks below EU average, except contribution of medium-high and high-tech manufacturing to the trade balance (IUS 3.2.3), where it strongly outperforms the EU average.

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[172] http://www.scimagojr.com/countrysearch.php?country=CY, 62.75% of international collaborations out of total documents (1,820)

[173] http://www.scimagojr.com/countrysearch.php?country=CY

[174] http://www.scimagojr.com/countryrank.php?area=0&category=0&region=Western+Europe&year=2013&order=it&min=0&min_type=it

[175] http://www.scimagojr.com/countrysearch.php?country=CY)

[176] http://www.scimagojr.com/countrysearch.php?country=CY

[177] ec.europa.eu/enterprise/policies/innovation/files/ius/ius-2014-database_en.xlsx

[178] ec.europa.eu/enterprise/policies/innovation/files/ius/ius-2014-database_en.xlsx

[179] World Intellectual Property Organisation, Cyprus

[180] http://www.epo.org/about-us/annual-reports-statistics/statistics/patent-applications.html

[181] http://www.epo.org/about-us/annual-reports-statistics/statistics/filings.html

In 2012, Cyprus produced on average 17.70 publications per 10,000 inhabitants, 28.3% above the EU-28 average (13.8). They are also internationally orientated with 64.48% of publications internationally co-published. In 2012, Cyprus had about 1,066 international scientific co-publications per million population, compared to 467 international scientific co-publications per million population in Malta. In the period 2002-2012, a bit more than 11% of the Cypriot scientific publications were in the top 10% most cited publications worldwide, almost the same as in the EU28 (Science Metrix, 2014)[182]. The share of public-private co-publications in Cyprus is just 1% in the period 2008-2013 against 2.8% for the EU28[183].

Table 5: Assessment of the Performance of the National Research and Innovation System.

1. ENABLERS	Year	CY	EU
Human resources			
New doctorate graduates (ISCED 6) per 1000 population aged 25-34	2011	0.30	1.70
Percentage population aged 30-34 having completed tertiary education	2012	49.90	35.80
Open, excellent and attractive research systems			
International scientific co-publications per million population	2012	1,066.11	343.15
Scientific publications among the top 10% most cited publications worldwide as % of total scientific publications of the country	2009	7.21	10.95
Finance and support			
R&D expenditure in the public sector as % of GDP	2012	0.34	0.75
Venture capital (early stage, expansion and replacement) as % of GDP	2012	N/A	0.08
2. FIRM ACTIVITIES			
R&D expenditure in the business sector as % of GDP	2012	0.06	1.31
Linkages and entrepreneurship			
Public-private co-publications per million population	2011	26.59	52.84
Intellectual assets			
PCT patent applications per billion GDP (in PPS€)	2010	0.30	3.92
PCT patent applications in societal challenges per billion GDP (in PPS€) (climate change mitigation; health)	2010	0.13	0.85
3. OUTPUTS			
Economic effects			
Contribution of medium and high-tech product exports to trade balance	2012	2.39	1.27
Knowledge-intensive services exports as % total service exports	2011	42.88	45.26
License and patent revenues from abroad as % of GDP	2012	N/A	0.59

Source: European Commission, IUS Database (2014).

[182] These publication data are based on Elsevier's Scopus database. ScienceMetrix, Analysis and Regular Update of Bibliometric Indicators, study conducted for DG RTD. They represent an update of the data displayed in the table below. See also http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=other-studies

[183] Scival 2014, Scopus based publication indicators derived from Elsevier's SciVal platform,www.scival.com last accessed December 2014.

Cyprus has changed status from moderate innovator[184] to innovation follower[185], after a significant innovation growth from 2008 onwards[186]. At the end of 2013, the innovation index was at 0.501, compared to 0.498 in 2012 and 0.499 in 2011[187]. The highest performance was in linkages and entrepreneurship dimension (0.73) and in human resources (0.62), while the lowest ranking was in finance and support dimension (0.22)[188].

Cyprus performed well above the EU average in international scientific co-publications, non-R&D innovation expenditures, community trademarks and innovative SMEs collaborating with others. Performance well below the average was observed in non-EU doctorate students, license and patent revenues from abroad and new doctorate graduates.

National trends demonstrate high growth in community designs (42.7%), sales share of new innovations (14.9%) and international scientific co- publications (13.7%)[189]. Declines were observed in license and patent revenues from abroad (14%), non-EU doctorate students (13%) and PCT patent applications (7.8%)[190].

Scientific performance is limited because of the size of the country and scientific community. However, scientific productivity is satisfactory. Conversely technological productivity was and remains very low. The main problem of the country is to increase inputs if the overall performance is expected to improve.

Table 6: Assessment of the Performance of the National Research and Innovation System

Feature	Assessment	Latest developments
1. Importance of the research and innovation policy	(+) There is increasing awareness of the need for R&I policy and system restructuring (-) There is a lack of coordination of R&D activities and public action in relevant policy areas lacks emphasis on a strategic, coherent and integrated way	(+) In September 2012, a National Committee for Research, Innovation and Technological Development was created
2. Design and implementation of research and innovation policies	(+) New RTDI strategy proposed by NCRTID report (-) Long delays in adopting a coordinated RTDI policy with clear political responsibilities (-) Policies and funding are not focused on specific priorities and address grand challenges only marginally	(+) The Smart Specialisation strategy introduced priorities for future areas of specialisation; Tourism, Energy and the Environment and Food Processing industry.

[184] Innovation performance is below that of the EU average at relative performance rates between 50% and 90% of the EU average.
[185] Innovation performance is close to that of the EU average i.e. less than 20% above or more than 90% of the EU average.
[186] Innovation Union Scoreboard 2014, pg. 55
[187] Innovation Union Scoreboard 2014, pg. 92
[188] Innovation Union Scoreboard 2014, pg. 93
[189] Innovation Union Scoreboard 2014, pg. 55
[190] Innovation Union Scoreboard 2014, pg. 55

Feature	Assessment	Latest developments
3. Innovation policy	(+) Innovation is announced as a key priority in the current programming period (+) A new MECIT agenda with novel schemes lays the foundations for more active future innovation policy	(+) The Cyprus Innovation Strategy is currently under review (+) Establishment of Innovation Houses in 2015, Business Innovation Centres (BIC), provision of the Innovation Package (+) Tender launched by MECIT for the promotion of Business innovation in SMEs. 41 proposals secured funding (+) Announcement of the launch of Social Innovation programme in 2016
4. Intensity and predictability of the public investment in research and innovation	(-) The financial crisis has decreased public funding for education and RTDI (-) There is very limited response from the private sector to increasing incentives (+) JEREMIE and a new IPR tax incentives are innovative financing solutions	(+) Increased emphasis in policy and funding is foreseen in the PA (+) Tax exemption on innovation expenses and on the acquisition of shares in innovative companies
5. Excellence as a key criterion for research and education policy	(-) Block funding follows historic and size criteria and is not associated to performance indicators (+) Public universities and public research organisations are autonomous in their recruitment policy (+) Excellence is a criterion in some of the RPF support schemes (+) International peer review and project selection is established (-) The legal, financial and social frameworks for research careers, including doctoral studies lack competitive schemes (-)Frontier science is limited because of the small size of the research community	(+) A new multiannual programme is under preparation, which is expected to focus on excellence (+) Announcement of the launch of the programme Islands of Excellence
6. Education and training systems	(-) There is a shortage of human resources for research (+) Despite lacking HEIs for a long time Cyprus ranks top in the share of educational attainment (-)Education is still disentangled from R&I and the Ministry of Education does not play an active role in RTDI policy	(+) Increase in the number of postgraduate courses in local universities and (informally) increasing adoption of IDT principles (+) Increase in the enrolment of students in CUT and UoC (+)On-going are the New Modern Apprenticeship, the Post-Secondary

Feature	Assessment	Latest developments
	design	Vocational Education Institutes, the job placement and training of young unemployed, the accelerated training of young newcomers and other unemployed persons, training programmes for upgrading the skills of unemployed persons, the enhancement of cooperation between universities and enterprises, the development of a competence-based system of vocational qualifications and the reform of the curricula at the secondary and tertiary education.
7. Partnerships between higher education institutes, research centres and businesses, at regional, national and international level	(+) There are clear rules on IP rights (+) Certain initiatives have been adopted to support commercialisation of innovative ideas (+)There are no obstacles to setting up and operating transnational partnerships and collaborations.	(+) In May 2012, Cyprus introduced the Intellectual Property Rights Box (IP Box), namely a set of tax incentives to boost intellectual property rights (+) Establishment of Innovation Houses in 2015 (+) Cluster development initiative "Strengthening research, technological development and innovation" in the period 2014-2020
8. Framework conditions promote business investment in R&D, entrepreneurship and innovation	(+) The rules for starting up and running a business are simple and rules are properly enforced (-) There is no venture capital market	
9. Public support to research and innovation in businesses is simple, easy to access, and high quality	(-) Bureaucracy is considered to be very high for the allocation of ERDF funds promoted by the RPF (-) The business sector considers that there is a mismatch between is needs and focus of support to high-tech	(+) RPF launched the Public Dialogue Committee (+) RPF has launched an action ("Patents") aiming at motivating individuals, research organisations and enterprises to file patent applications
10. The public sector itself is a driver of innovation	(-)The government had announced a public procurement for innovation scheme, which was abandoned after the crisis triggered public budget reductions (+) Public Sector Innovation Scoreboard Cyprus ranked second in the list of countries with the largest public procurement of innovations (despite the fact that there is no explicit PPI or PCP policy)	

5.2 Structural challenges of the national R&I system

RIS3 claims that the R&I system in Cyprus is constrained by the unfavourable macroeconomic conditions, the lack of financing from the banking sector and the lack of a venture capital market (external factors). Structurally, the market is very small and suffers from low business R&D and limited collaborations between academia and the industry. There is a lack of sectoral strategic planning and disentanglement of education activities from R&I. Opportunities could emerge through the development of a fiscal framework for research motivation, the enhancement of the research 'culture', the intensification of high quality research from universities and research centres and the establishment of incentives for the employment and retention of researchers[191]. Such initiatives are identified in the NCRTDI report published last April 2014.

The key structural challenges, as identified in Erawatch Reports in 2012 and 2013 are presented below.

Limited human resources for research

A major challenge is the increase of the number and qualifications of researchers in the country: researchers in the public sector suffer from reduced salaries, whereas the business sector does not employ research personnel.

In 2013, Cyprus recorded the highest percentage of population aged 25-34 years old with tertiary education in Europe, 51.4% compared to 53.6% in 2012 and 50.5% in 2010 (EU-28 average at 31.6%).

Extending the age group to 25-64 years old, Cyprus ranks 5th and is still above the EU average (39.3% compared to an EU-28 average of 28.5% at the end of 2013)[192]. However, the labour market for researchers is very small. At the end of 2012 (latest available date), total R&D personnel and researchers accounted for 0.62% of total active population, the lowest rate after Romania[193]. Most of the researchers are employed in HEI (66% of total)[194].

The lack of adequate conditions for research (narrow research base, absence of large research infrastructures), the small size of the business market and the low salaries (after the reduction of salaries of the public service) further limit the career choices for researchers and leads to significant brain-drain.

Limited demand for R&D

The composition of the Cypriot business sector does not favour demand for R&D. The economy is dominated by micro, small & medium enterprises which make up 99.8% of the entrepreneurship[195]. Small and micro – enterprises are focused mostly on low value added support services, hence are unlikely to invest in RTDI. Despite the continuous increase in national or European funding opportunities for SMEs, the mobilisation of SMEs is lower than national targets.

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[191] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 17

[192] Eurostat Population with tertiary education by age and sex (edat_lfse_07)

[193] Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex (rd_p_perslf)

[194] Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex (rd_p_perslf)

[195] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 10

Wholesale and retail trade, transport, accommodation and food service activities account for over 24.3% of Gross Value Added (GVA) at basic prices in 2013[196], hence there is insufficient involvement of firms in research activities. R&D expenditure from the business enterprise sector has been steadily decreasing since 2008 and in 2013 accounted for about 15% of total GERD. In 2013, there were signs of recovery with BERD per capita reaching 2011 levels (€ 15.4 per capita).

As evidenced by the analysis in the context of RIS3, enterprises do not participate in R&D project due to bureaucracy, unawareness of the existence of funding and development programs and opportunities[197].

Limited propensity to innovate through exploitation of research results

While there is evidence that there are innovative activities in the country (high turnover from innovation and high public service innovation) these innovations are only incremental and in the service sector. Hence, the inadequate exploitation of knowledge is one of the major problems. The performance of the "Intellectual Assets" indicators of the IUS, which seem to be the weakest point of the national innovation performance (with the exception of community trademarks and designs), confirms that knowledge exploitation is limited. The number of patent applications filed under the PCT is very low. This performance does not seem to be improving over time. The country is only strong in trademarks (about 250% of the EU average). This is, however, compatible with the size and structure of the economy and it can only be improved very slowly.

This is associated with the lack of awareness (and culture) of enterprises for the potential benefits of innovation, the limited involvement of SMEs, the limited collaboration between business and academia (which could encourage companies to exploit university research results in the market) and last but not least a divide: the composition of the business sector is dominated by services (80% of GDP), whereas innovation support is not sufficiently oriented to the service sector. The lack of availability of seed capital and market exit capitalisation for R&D businesses deprives the country from an instrument that is effective in other countries.

Limited number of high-tech companies in the country

Total R&D expenditure performed by high tech companies in Cyprus is the lowest in EU, reaching € 13 m in 2013[198]. Employment in high tech sectors was among the lowest in EU at 2.6% of total employment in 2013, compared to a Eu-28 average of 3.9%[199].

The lack of seed and venture capital, the small size of the market and the peripheral location of the country are important barriers to high-tech company development.

Too broad research orientation in need of more prioritisation

Funding in the previous programming period (2007-2013) was spread throughout different research areas leading to broad research orientation, not justified by the size of the country and its economy and without reference to its competitive advantages. Limited

[196] Eurostat, Gross Value Added at basic prices (nama_nace10_c)

[197] Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014, pg. 20

[198] Eurostat, Business enterprise R&D expenditure in high-tech sectors - NACE Rev. 2 (htec_sti_exp2)

[199] Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

financial resources available for the investment in RTDI require stronger concentration to ensure smart specialisation.

Table 7: Summarised table of key structural challenges

Challenges	Justification
1. Limited human resources for research	- Total R&D personnel is one of the lowest in EU in spite of the high rank of Cyprus in the number of people with tertiary education. - Limiting factors are the narrow research base, the absence of large research infrastructures, the small size of the business market and the lowering of salaries after the crisis.
2. Limited demand for R&D	- Existence of micro, small & medium enterprises, unlikely to invest in RTDI. - Economy oriented towards trade and services that do not require research. - BERD is low and steadily decreasing though showing signs of recovery.
3. Limited propensity to innovate	- Limited knowledge exploitation despite the fact that there are high shares of innovation in turnover and public sector innovation. - Low number of patent applications filed under the PCT . - Limited collaboration between business and academia. -
4. Limited number of high-tech companies in the country	- Total R&D expenditure performed by high tech companies is the lowest in EU. - Employment in high tech sectors among the lowest in EU. - Lack of seed financing and the small size of the market are deterrent factors. - Lack of availability of seed capital and market exit capitalisation for R&D businesses.
5. Too broad research orientation lacking prioritisation	- Funding in the previous programming period (2007-2013) was spread throughout different research areas leading to broad research orientation.

5.3 Meeting structural challenges

The five major challenges identified are recognised by the government and are increasingly addressed. However, one should recognise that in a country where both supply and demand of research inputs are low, a RTDI culture is missing, and financial resources are scarce it is extremely difficult to address the problems. Nevertheless, efforts are being made:

Limited human resources for research

The government has addressed the problem with the continuously rising number of postgraduate courses in universities. The Cyprus National Reform Programme 2013 included a target to increase participation in Higher education by 2020 to 46% through the expansion and modernisation of HEIs, strengthening links between training and the labour

market and promoting transnational mobility[200]. The CUT increased its enrolment in September 2013 by 35 students and allowed up to 30 students already studying abroad but not being able to sustain tuition to get transferred to CUT.

UoC also increased its enrolment by 100 students and accepted up to 200 students from abroad[201]. The government announced the increase of students enrolled in UoC and CUT in 2014-2015 by 486 and 191, respectively[202].

The "Development of Research and Innovative Culture" Programme (2009-2010) of RPF is addressed to pupils and students of all education levels, promoting the development of innovative ideas and offering rewards to experienced researchers with remarkable research work of international level[203].

Cyprus National Reform Programme 2014 does not include explicit measures for the increase of R&D personnel but focuses on more general measures addressing overall unemployment, including training programmes for upgrading the skills of unemployed persons, initiatives for the enhancement of cooperation between universities and enterprises, the development of a competence-based system of vocational qualifications and the reform of the curricula at the secondary and tertiary education[204].

On a negative note, Law 168 (I)/2012, as amended by Law 31(I) 2013 introduced decreases in the salaries of public sector employees that range from 0.8%-14.5%, depending on the salary level.

Salary reductions affected in particular the number of PhD students[205]. Unless salaries and benefits are increased it is unlikely that researchers will be attracted.

Limited demand for R&D (medium to long term)

The government places emphasis on industry-academia collaboration schemes such as the Industrial Liaison Offices (ILO) and the establishment of a Business Support Centre. RPF has launched an action ("Patents") aiming at motivating individuals, research organisations and enterprises to file patent applications.

A cluster development policy is also expected between competing or complementary businesses, with the aim to create 5 clusters by the end of the programme and a total budget of € 3.5 million[206].

However, the problem of limited R&D demand is associated with the structure of the business sector (sectors, share of traditional SMEs and size of the market). The creation of the Cyprus Association of Research and Innovation Enterprises by the business sector did not change the situation in any visible way. As long as the structure of production is not

[200] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013, pg. 14
[201] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013, pg. 15
[202] http://newpost.gr/post/360723/kypros-ayksanontai-oi-theseis-gia-foithtes-sta-kratika-panepisthmia, December 2014
[203] http://www.research.org.cy/EN/national_programmes/nfprtd200920010/ii/developmentofresearchandinnovativeculture/index.html, December 2014
[204] Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014, pg. 7
[205] Deloitte, Researchers' Report 2014 Country Profile: Cyprus, pg. 11
[206] Smart Specialisation Strategy Cyprus, September 2014 pg. 346

addressed and the market is not growing, using exports as an opportunity, demand is unlikely to grow, in particular under the current financial crisis. It is important to combine R&D support with business opportunities, if the government wishes to address deeply rooted business behavioural patterns.

Limited propensity to innovate (short to medium term)

Public policy has addressed the problem with policies and instruments to support the commercialisation of innovative ideas, such as knowledge transfer platforms, and voucher systems. The grant scheme for innovative products and services implemented in 2012 progressed smoothly and about 40 innovative products are expected to enter the market in 2014 and 2015.

Technology transfer offices in HEIs have been created to facilitate technology transfer. The governance report of the NCRITD calls for the establishment of NKTO to facilitate collaborations also with other parties (i.e private R&D organisations, industry), promote ideas for the commercialisation of R&D results, and promote synergies.

Other initiatives announced in the current programming period and described under section 2 above include:

- The establishment of Business Innovation Centres (BIC) accredited by the European Business Network, for the provision of advisory services to public and private businesses for the development of competitive products.
- The provision of Innovation Packages to innovative businesses, businesses cooperating with RPOs, start-ups and joint ventures.
- The establishment of Innovation Houses.

A new programme for the enhancement of Social Innovation is expected (two calls in 2016 and 2018)[207] that will provide new ideas, products, services, technologies, models and strategies that will meet the social needs of the country.

The foreseen increasing introduction of e-government and public sector innovation in combination with the postponed pre-commercial procurement scheme may be a good opportunity to stimulate innovation in the future. All announced measures seem appropriate for the enhancement of innovation in the market. Their success will depend on their implementation rate and the responsiveness from the market.

Limited number of high-tech companies in the country (medium to long term)

This challenge is not sufficiently addressed, although success stories exist with the establishment of a number of innovative companies that export to Europe and to the USA. Most of these companies have graduated from the business incubators programme[208]. The best way to address the current deficiencies of the business sector is through the renewal of the productive capacities by developing high-tech companies in niche areas. Such initiatives are yet to be implemented, but the creation of clusters through strategic partnerships between competing or complementary businesses and the establishment of the STP presented under section 2.2 are steps towards the right direction.

[207] Smart Specialisation Strategy Cyprus, September 2014 pg. 360
[208] Cyprus National Reform Programme 2011

However, more emphasis is needed to increase scale. Only internal university support schemes and the youth entrepreneurship scheme (with no funds left in 2012 for a new call) are the main instruments to support high-tech creation. The lack of a well-organised capital market and venture capital discourage any potential external investors.

University support is of limited volume and the Youth Entrepreneurship scheme addresses traditional and high-tech companies alike. The slow and inefficient operation of incubators and technology parks has been a barrier to innovative start-ups.

It is important to review and reconsider the implementation of measures such as the incubators scheme, a scheme for the development of new high-tech companies, development of a local Business Angels network etc. The establishment of a legal framework, which will facilitate the creation of university spin-offs, is needed.

Too broad research orientation lacking prioritisation

The RPF has made successive efforts to limit the areas for which it launches competitive calls to avoid thinly spread budgets. This is, however, difficult and meets with resistance from the disciplines neglected. This is understandable, since the research budget is very low and the country needs to maintain and improve an effective education system, which needs research funds to keep its knowledge basis up-to-date. In addition the RPF does not have the resources to devise such an important decision, as there is reluctance to dedicate more of the very limited resources; the higher the focus the higher the protest from disciplines out of focus.

In the period 2014-2020 and under the priority "Strengthening research, technological development and innovation" emphasis will be placed on the promotion of R&D collaborations in the areas of tourism, energy, agriculture, construction, shipping, health, environment, ICT and communications through the participation in JPI (JPI FACCE, JPI Water, Solar- ERANET) and joint research programmes[209]. These sectors were also identified as priority sectors in RIS3.

[209] Cyprus Partnership Agreement 2014-2020, May 2014

Annex 1 – References

Bankruptcy and second chance for honest bankrupt entrepreneurs, Cyprus (Tsipouri L., 2014)

Caruso J., Archambault A. and E., Open Access Strategies in the European Research Area, August 2013 produced for the European Commission DG Research & Innovation

Commission Staff Working Document, Assessment of the 2014 National Reform Programme for Cyprus, June 2014

COMMISSION STAFF WORKING DOCUMENT, Country Fiches accompanying the document Communication from the Commission to the Council and the European Parliament, European Research Area Progress Report 2014

COMMISSION STAFF WORKING DOCUMENT, Snapshots Member States of the European Union Accompanying the document COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT European Research Area Progress Report 2014

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT, European Research Area, Progress Report 2014

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS , Review of the "Small Business Act" for Europe, 2011

Cyprus National Reform Programme 2012

Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014

Cyprus Partnership Agreement 2014-2020, May 2014

CYPRUS: Prioritisation, Entrepreneurial Discovery and Policy mix in the RIS3 process, Portoroz (SI), 15-16 May 2014 Leonidas Antoniou Antonis Theocharous Spyros Avdimiotis

Deloitte, Researchers' Report 2014 Country Profile: Cyprus

ERAWATCH Communication Fiche Cyprus 2013

ERAWATCH Country Report 2013: Cyprus

ERAWATCH Country Fiche 2013: Cyprus

Eurostat, Business enterprise R&D expenditure in high-tech sectors - NACE Rev. 2 (htec_sti_exp2)

Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

Eurostat, GDP (nama_gdp_c)

Eurostat, Gross Value Added at basic prices (nama_nace10_c)

Eurostat, People at risk of poverty or social exclusion by age and sex. Last update 16.09.2014

Eurostat Population with tertiary education by age and sex (edat_lfse_07)

Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)

Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex [rd_p_perslf]

Eurostat- Turnover from Innovation as % of total turnover (tsdec340)

European Commission DG Directorate C-European Research Area Universities and Researchers, Study on mobility patterns and career paths of EU researchers, Part I Mobility Survey of the higher educational sector, June 2010

Europe 2020 targets Research and Development

Europe 2020 Themes: Digital Agenda: Broadband and E-communications

European Commission, A European Industrial Renaissance and support for EU businesses, Taking Stock of Vice-President Tajani's Main Achievements 2010-2014

European Commission DG RTD, Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe, Final Report

European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' carried out by: Lena Tsipouri, September 2013

European Commission, Guidebook Series How to support SME Policy from Structural Funds, 2014

European Research Area, Progress Report 2014

European Public Sector Innovation Scoreboard 2013 A pilot exercise

EVCA Tax Benchmark Study 2012, June 2013

Expert evaluation network delivering policy analysis on the performance of Cohesion policy 2007-2013, Year 3 – 2013, Task 2: Country Report on Achievements of Cohesion policy - Cyprus

Global Competitiveness Report 2013-2014, World Economic Forum

IA study on the Open, transparent, and merit-based recruitment of researchers, Final Report, March 2014, Technopolis group

Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, National Committee for Research, Innovation and Technological Development, March 2014 (in Greek)

Innovation Union Competitiveness Report 2013

Innovation Union Scoreboard 2014

Ivancheva L., Gourova E. 2011. Challenges for career and mobility of researchers in Europe, Oxford Journal Social Sciences, Science and Public Policy, Vol. 38, Issue 3, pp 185-198

JRC Scientific and Technical Reports, European university funding and financial autonomy, A study on the degree of diversification of university budget and the share of

competitive funding, Laura de Dominicis, Susana Elena Pérez, Ana Fernández-Zubieta, 2011

Law 115 (I) 2014

Law 21 (I) 2013

Law 118 (I)2002

Law 68 (I) 96

Memorandum of Understanding on Specific Economic Policy Conditionality, June 2014

Memorandum of Understanding on Specific Economic Policy Conditionality, September 2014

MORE2 Remuneration Cross country Report, April 2013,

NETWATCH Platform on transnational R&D programme collaboration

Open Access for Research Infrastructure in Europe

PCT Yearly Review: The International Patent System data 2014

Proportion of Open Access Peer-Reviewed Papers Papers published in Peer-Reviewed Journals at the European and World Levels 1996-2013, October 2014, Science Metrix

ScienceMetrix, 2014, Analysis and Regular Update of Bibliometric Indicators, study conducted for DG RTD

Scival 2014 - www.scival.com

Smart Specialisation Strategy for Cyprus, September 2014

Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014

Solvency Law chapter 5

The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players, Statistics Compendium 2014

The Economic Adjustment Programme for Cyprus Fourth Review - Spring 2014, Occasional Papers 197/July 2014

The unofficial codification of laws for the Cyprus University of Technology in the period 2003 – 2011.

The unofficial codification of laws for the Cyprus University of Technology in the period 1989 – 2007.

Think pieces 03/2014

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Annex 2 – Abbreviations

BERD	Business Expenditures for Research and Development	-
BIC	Business Innovation Centres	Κέντρα Επιχειρηματικής Καινοτομίας
CEI	Commissioner of Entrepreneurship and Innovation	Επίτροπος Έρευνας, Καινοτομίας και Επιχειρηματικότητας
CERN	European Organisation for Nuclear Research	-
CII	Cyprus International Institute for the Environment and Public Health	Διεθνές Ινστιτούτο Κύπρου για την Περιβαλλοντική και Δημόσια Υγεια
CING	Cyprus Institute of Neurology and Genetics	Ινστιτούτο Νευρολογίας και Γενετικής Κύπρου
CSC	Cypriot Scientific Council	Επιστημονικό Συβούλιο Κύπρου
CUT	Cyprus University of Technology	Τεχνολογικό Πανεπιστήμιο Κύπρου
CyNet	Cyprus Research and Academic Network	Κυπριακό Ερευνητικό και Ακαδημαϊκό Δίκτυο
DESMI	Research Promotion Foundation's Framework Programme for Research, Technological Development and Innovation	ΔΕΣΜΗ
DGRIE	Directorate General of Research, Innovation and Entrepreneurship	Γενική Διεύθυνση Έρευνας, Καινοτομίας και Επιχειρηματικότητας
DGEPCD	Directorate General for European Programmes, Coordination and Development	Γενική Διεύθυνση Ευρωπαϊκών Προγραμμάτων, Συντονισμού και Ανάπτυξης
EAFRD	European Agricultural Fund of Rural Development	-
EPO	European Patent Office	-
ERA	European Research Area	-
ERA-NET	European Research Area Network	-
ESIF	European Structural and Investment Funds	-
ESFRI	European Strategy Forum on Research Infrastructures	-
ESM	European Stability Mechanism	-
FDI	Foreign Direct Investments	-
FP7	7th Framework Programme	7ο Πρόγραμμα Πλαίσιο
GBAORD	Government Budget Appropriations or Outlays on R&D	-
GDP	Gross Domestic Product	Ακαθάριστο Εθνικό Προϊόν
GERD	Gross Domestic Expenditure on R&D	Ακαθάριστη Εγχώρια Δαπάνη Έρευνας και Τεχνολογικής Ανάπτυξης
GUF	General University Funds	-
HEIs	Higher Education Institutions	Ανώτερα Εκπαιδευτικά Ιδρύματα
HERD	Higher Education Expenditure on R&D	Δαπάνη Έρευνας και Τεχνολογίας Ανώτερων Εκπαιδευτικών Ιδρυμάτων
HRST	Human Resources in Science and Technology	Προσωπικό απασχολούμενο σε Έρευνα και Τεχνολογία
ICT	Information Communication Technology	Τεχνολογία Πληροφορικής
ILO	Industry Liaison Office	Γραφείο Διασύνδεσης
IMF	International Monetary Fund	Διεθνές Νομισματικό Ταμείο
IPR	Intellectual Property Rights	Διπλώματα Ευρεσιτεχνίας
IU	Innovation Union	-
IUS	Innovation Union Scoreboard	-
JEREMIE	Joint European Resources for Micro to Medium Enterprises	-
JPI	Joint Programming Initiatives	Κοινές Προγραμματικές Πρωτοβουλίες
JTI	Joint Technology Initiatives	Κοινές Τεχνολογικές Πρωτοβουλίες

KYSATS	Council of Recognition of Higher Qualifications	Κυπριακό Συμβούλιο Αναγνώρισης Τίτλου Σπουδών
MECIT	Ministry of Energy, Commerce, Industry and Tourism	Υπουργείο Ενέργειας, Εμπορίου, Βιομηχανίας και Τουρισμού
NCRI	National Research Council for Research and Innovation	Εθνικό Συμβούλιο Έρευνας και Καινοτομίας
NCRIE	National Council of Research, Innovation and Entrepreneurship	Εθνικό Συμβούλιο Έρευνας, Καινοτομίας και Επιχειρηματικότητας
NCRITD	National Committee for Research, Innovation and Technological Development	Εθνική Επιτροπή Έρευνας, καινοτομίας και Τεχνολογικής Ανάπτυξης
NKTO	National Knowledge Transfer Office	Εθνικό Γραφείο Μεταφοράς Τεχνολογίας
NRP	National Reform Programme	-
OECD	Organisation for Economic Co-operation and Development	Οργανισμός Οικονομικής Συνεργασίας και Ανάπτυξης
OP	Operational Programme	Επιχειρησιακό Πρόγραμμα
ORTF	Organisation of Research and Technology Transfer	Οργανισμος Έρευνας και Μεταφοράς Τεχνολογίας
PA	Partnership Agreement	Συμφωνία Πλαίσιο
PSIVET	Post-secondary Education Institutes of Vocational Education and Training	Ινστιτούτα Δευτεροβάθμιας Εκπαίδευσης και Επαγγελματικής Εκπαίδευσης και Κατάρτισης
R&D	Research and development	Έρευνα και Ανάπτυξη
R&I	Research and innovation	Έρευνα και Καινοτομία
RES	Renewable Energy Sources	Ανανεώσιμες Πηγές Ενέργειας
RIE	Research, Innovation, Entrepreneurship	Έρευνα, Καινοτομία, Επιχειρηματικότητα
RPF	Research Promotion Foundation	Ίδρυμα Προώθησης Έρευνας
RPO	Research Public Organisations	Δημόσια Ερευνητικά Ιδρύματα
RTDI	Research Technological Development and Innovation	Έρευνα Τεχνολογική Ανάπτυξη και Καινοτομία
SF	Structural Funds	Κεφάλαια Διαρθωτικών Ταμείων
STP	Science Technology Park	Επιστημονικό Τεχνολογικό Πάρκο
SME	Small and Medium Sized Enterprise	Μικρομεσαίες Επιχειρήσεις
UAT	University Autonomous Tool	-
UCY	University of Cyprus	Πανεπιστήμιο Κύπρου
VC	Venture Capital	Κεφάλαια Επιχειρηματικών Συμμετοχών
VET	Vocational Education and Training	Επαγγελματική Εκπαίδευση και Κατάρτιση

European Commission
EUR 27302 EN – Joint Research Centre – Institute for Prospective Technological Studies

Title: RIO Country Report Cyprus 2014

Author: Lena Tsipouri & Sophia Athanassopoulou

Luxembourg: Publications Office of the European Union

2015 – 61 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424 (online)

ISBN 978-92-79-48958-7 (PDF)

doi:10.2791/682817

LF-NA-27302-EN-N

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doi:10.2791/682817

ISBN 978-92-79-48958-7

Publications Office